

RIVER KRISHNA

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*River Krishna for
which discharge data*

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FOREWORD

The data presented herein have been abstracted from Annexure III, Ten-daily Discharge Data of the Krishna River System, and are subject to the remarks set out in the foreword of that Annexure.

As in Annexure III, the year has been taken as the water year applicable to the hydrologic conditions on the Krishna and the Godavari rivers, from 1st June of one year to 31st May of the following year.

The flow at any site as shown herein includes the withdrawals, if any, at that site and releases from upstream storage, if any. This flow excludes upstream withdrawals and extractions for storage, if any.

The commission found a wide variation in the methods of observation or calculation of discharges adopted at various sites, from time to time. Since the reliability of river discharge data is closely related to the method of observation or estimation of river discharges, the Commission made special efforts to ascertain these methods. The information that could be obtained in this respect has been set out in this Annexure for each site.

An index map showing all the discharge sites is at the end of this Annexure.

**LIST OF SITES ON RIVER KRISHNA
FOR WHICH DISCHARGE DATA HAVE**

Sites at which observations have been discontinued

Classification :

D₁—Sites at which velocity observa-

D₂—Sites at which velocity observa-

S —Sites at which velocity is estima-

C —Sites at which discharges are

A —Sites at which discharges are

T — Sites at which discharges are

spillway overflow and with-

Serial number	Name of site	State in which located	Name of	
			sub-tributary	tributary or main river
1	2	3	4	5
1.	Dhom	Maharashtra	—	Krishna
2.	Khodshi weir	"	—	"
3.	Karad	"	—	"
4.	Chitapur	Mysore	—	"
5.	Deosugur	"	—	"
6.	Siddeswaram	Andhra Pradesh	—	"
7.	Nagarjunasagar Dam	"	—	"
8.	Vijayawada	"	—	"
9.	Jalkewadi	Maharashtra	—	Koyna

**AND ITS TRIBUTARIES
BEEN MADE AVAILABLE.**

are shown in italics.

- ations are made by current meter
- tions are made by floats
- ted from observation of water-surface slope
- calculated from gauge-discharge curves
- calculated by weir formulae
- based on capacity table of the reservoir,
- drawal through sluices

Classifi- cation	Period for which data available		Remarks	Serial number
	Period	Number of years for calculating average		
6	7	8	9	10
D ₂	June 1907 to Dec. 1918; Jan. 1922 to Apr. 1927	17		1
A	Nov. 1947 to May 1961	12		2
D ₂	Aug. 1950 to Mar. 1957	6		3
S	June 1958 to May 1959	—		4
S	July 1958 to May 1959	—		5
S	June 1948 to July 1953	5		6
S/D ₁	Aug. 1956 to May 1961	3	Irregular observations	7
A	June 1901 to May 1961	60	Earlier data from 1894 not included	8
D ₁	1949 to 1960	12	June to Oct. only	9

**LIST OF SITES ON RIVER KRISHNA
FOR WHICH DISCHARGE DATA HAVE**

Serial number	Name of site	State in which located	Name of	
			sub.tributary	tributary or main river
1	2	3	4	5
10.	<i>Helwaki</i>	Maharashtra	—	Koyna
11.	<i>Yerahandi</i>	"	—	Verla
12.	Ramapur	"	—	"
13.	Radhanagri	"	Bhogawati	Panchganga
14.	<i>Hadalga</i>	"	—	Ghataprabha
15.	<i>Daddi</i>	"	—	"
16.	Dhupdal	Mysore	—	"
17.	<i>Chinchkandi</i>	"	—	"
18.	<i>Anagradi</i>	"	—	"
19.	<i>Murmultisangam</i>	"	—	"
20.	<i>Ajra</i>	Maharashtra	Hiranyakeshi	"
21.	<i>Basapur</i>	Mysore	Markandeya	"
22.	Asoga	"	—	Malaprabha
23.	Kolchi	"	—	"
24.	<i>Hiresangam</i>	"	—	"
25.	<i>Chaskaman</i>	Maharashtra	—	Bhima
26.	Dhond	"	—	"

AND ITS TRIBUTARIES

BEEN MADE AVAILABLE (contd.)

Classifi- cation	Period for which data available		Remarks	Serial number
	Period	Number of years for calculating average		
6	7	8	9	10
D ₂	1906 to 1925-26	20	Annual yield only	10
D ₂	1913 to 1916, 1919 to 1926	12		11
D ₂	Aug. 1956 to May 1961	—	Irregular observations	12
T	Jan. 1954 to May 1961	7		13
D ₂	1906 to 1918	13	Annual yield only	14
	June 1919 to May 1927	8		
D ₂	June 1949 to Oct. 1955	4	Irregular observations	15
A	1906 to 1925-26	20	Annual yield only	16
	Jan. 1938 to May 1961	23		
D ₂	1953 to 1958	4	June to Nov. only, irregular observations	17
D ₂	1949 to 1957	3	-do-	18
D ₂	1949 to 1957	5	-do-	19
D ₂	1964 to 1926	22	June to Dec. only	20
D ₂	1949 to 1954	5	June to Nov. only	21
D ₂	1949 to 1960	8	June to Dec. only irregular observations	22
A	June 1951 to May 1961	10		23
D ₂	1952 to 1956	5	June to Nov. only	24
D ₂	1906 to 1925-26	20	Annual yield only	25
D ₁	1955-56, 1958-59, 1959-60 and 1960-61	4	Dec. to May only	26

**LIST OF SITES ON RIVER KRISHNA
FOR WHICH DISCHARGE DATA HAVE**

Serial number	Name of site	State in which located	Name of	
			sub-tributary	tributary or main river
1	2	3	4	5
27.	<i>Yadgir</i>	Mysore	—	Bhima
28.	<i>Waki</i>	Maharashtra	Bhama	„
29.	<i>Wadivale</i>	„	Kudil Nalla	„
30.	Shikrapur	„	Vel	„
31.	<i>Pimpulgaon Rahu</i>	„	Mula-Mutha	„
32.	Mulshi Dam	„	Mula	„
33.	Khadakwasla	„	Mutha	„
34.	<i>Nirgulsar</i>	„	Ghod	„
35.	Wadgaon	„	Mina (Ghod)	„
36.	<i>Edgaon</i>	„	Kukdi (Ghod)	„
37.	Visapur	„	Hanga (Ghod)	„
38.	<i>Natambi</i>	„	Nira	„
39.	Vir	„	„	„
40.	Sarati	„	„	„
41.	<i>Narasingpur</i>	„	„	„
42.	Bhatghar	„	Yelwandi (Nira)	„
43.	<i>Mohvi</i>	„	Gunjawani (Nira)	„
44.	<i>Hatwalan</i>	„	Sina	„
45.	<i>Wadakbal</i>	„	„	„

**AND ITS TRIBUTARIES
BEEN MADE AVAILABLE**

Classifi- cation	Period for which data available		Remarks	Serial number
	Period	Number of years for calculating average		
6	7	8	9	10
S	July 1957 to March 1959	—		27
D ₂	June 1949 to July 1959	9		28
D ₂	June 1949 to Oct. 1959	9		29
D ₂	June 1949 to May 1961	11		30
D ₂	1950 to 1959	5	Jan. to May only, irregular observations	31
T	June 1930 to May 1961	31	Monthly figures only	32
T	June 1946 to May 1961	15		33
D ₂	1906 to 1927	21	June to Dec. only	34
D ₂	1904 to 1912 and 1917 to 1924	17	June to Dec. only	35
	Jan. 1947 to May 1961	12	Full year	
D ₂	1906 to 1925-26	20	Annual yield only	36
T	Dec. 1949 to May 1961	10		37
D ₂	1906 to 1925-26	20	Annual yield only	38
A	June 1942 to May 1961	19		39
D ₂	1949 to 1960	3	Jan. to May only, irregular observations	40
D ₂	1950 to 1959	3	-do-	41
T	June 1941 to May 1961	20		42
D ₂	1906 to 1925-26	20	Annual yield only	43
D ₂	June 1902 to May 1916 and June 1948 to May 1960	21		44
D ₂	1952, 1953, 1958, 1959 and 1960	5	Jan. to May only	45

**LIST OF SITES ON RIVER KRISHNA
FOR WHICH DISCHARGE DATA HAVE**

Serial number	Name of site	State in which located	Name of	
			sub-tributary	tributary or main river
1	2	3	4	5
46.	Ekruk Tank	Maharashtra	Ekruk Nalla (Sina)	Bhima
47.	Hallur	Mysore	—	Tungabhadra
48.	Harihar	"	—	"
49.	Havanur	"	—	"
50.	Hesrur	"	—	"
51.	Tungabhadra Dam	"	—	"
52.	Rajolibanda	"	—	"
53.	Sunkesala	Andhra Pradesh	—	"
54.	Tunga anicut (Sacrebyle)	Mysore	Tunga	"
55.	Lakkavalli	"	Bhadra	"
56.	Bhadra Anicut	"	"	"
57.	Banavasi	"	Varada	"
58.	Vani Vilas Sagar	"	Hagari or Vedavati	"
59.	Naranapur Anicut	"	"	"
60.	Bhairavanithippa	Andhra Pradesh	"	"
61.	Gundlapalli Dam (Dindi)	"	—	Dindi
62.	Palleru	"	—	Palleru

**AND ITS TRIBUTARIES
BEEN MADE AVAILABLE.**

Classifi- cation	Period for which data available		Remarks	Serial numbe.
	Period	Number of years for calculating average		
6	7	8	9	10
T	May 1944 to May 1961	17		46
D ₂	Jan. 1951 to May 1955	4		47
D ₂	Nov. 1950 to Oct. 1955	4		48
D ₂	Nov. 1950 to Oct. 1955	4		49
D ₂	Nov. 1950 to Oct. 1954	3		50
C	June 1931 to May 1941	10	Monthly figures	51
T	Feb. 1950 to May 1961	11		
A	July 1960 to May 1961	—		52
A	June 1904 to May 1936	32		53
C	June 1936 to May 1953	17		
C	June 1953 to May 1961	8		
S,A	Jan. 1946 to June 1955 and July 1958 to Mar. 1961	10	Irregular observations	54
C/T	June 1930 to May 1961	31		55
A	May 1947 to Sep. 1954	—	Irregular observations	56
D ₂	1908 to 1925-26	18	Annual yield only	57
C/T	July 1913 to Dec. 1960	47	Seasonal yield only	58
A	Feb. 1960 to May 1961	—		59
T	Jan. 1957 to May 1961	4		60
T	June 1958 to May 1961	3		61
T	June 1958 to May 1961	3		62

NOTATION

Unless otherwise stated, the following notation has been adopted herein :-

- Q = Discharge in cusecs
 L = Length, in feet, of weir or vent over which flow takes place
 H = Depth of flow, in feet, on the crest of a weir
 N = Number of end contractions
 S = Surface slope of water flowing in a channel
 $N(k)$ = Kutter's rugosity coefficient
 $N(m)$ = Manning's rugosity coefficient
 $R.L.$ = Reduced level, or elevation in feet above mean sea-level
 h_a = Head, in feet, due to velocity of approach
 V_a = Velocity of approach, in feet per second
 g = Acceleration due to gravity, in feet per second per second
 h = Head in feet
 d = Difference (in feet) between the water level downstream of a weir and the crest of the weir
 C = Coefficient
 G = Gauge reading (in feet)
 D = Depth of water in a channel

METHODS ADOPTED FOR OBSERVING DISCHARGES AT VARIOUS SITES ON THE KRISHNA AND ITS TRIBUTARIES

Sites at which observations have been discontinued are shown in italics

(1) *Krishna at Dhoni (Maharashtra)* :

The area-velocity method was adopted at this site.

A cross-section at the site was taken generally at intervals of three or four years when cross-sectional areas for different gauge heights were worked out. The site is reported to be stable and not erodible.

The velocity observations during normal monsoon flow were made by using surface floats, generally wooden floats, released and picked up by trained swimmers. No boat was used. These observations were made at five points, one in the middle of the river, one near each bank and one between each bank and the middle. The gauge-run was usually 600 feet to 800 feet long and the mean surface velocity was obtained by dividing the length of the run by $\frac{1}{4}(t_1 + t_2 + t_3 + t_4 + t_5)$ in which t_1, t_2, t_3, t_4 and t_5 were the times, in seconds, taken by each successive float, starting from one bank of the river, to travel from the upper to the lower end of the gauge-run. The mean velocity was calculated by multiplying the mean surface velocity with a coefficient depending on the hydraulic mean depth in accordance with Higham's Table IV, reproduced below:

<i>Hydraulic mean depth</i> feet	<i>Value of coefficient</i>
0.5	0.59
1.0	0.65
2.0	0.71
3.0	0.73
4.0	0.75
5.0	0.76
6.0	0.77
9.0	0.78
12.0	0.79

The gauge and velocity observations were usually taken twice a day at 6 a.m. and 6 p.m. but during monsoon, when there are frequent fluctuations in the discharge, observations were made more frequently. The wooden floats are thrown such that they fell

approximately in the required compartments. Gauge readings were taken both at the beginning and end of the velocity observations.

From observations made in accordance with the method described above, standard discharge tables were prepared to serve as a check on the day to day work and for use when the velocity measurements were not made for any reason.

During the period from December to May, when the water-level goes below zero level of the gauge, the flow was diverted in a small well-defined channel of uniform width for a length of about 50 feet and velocity observations were made by noting the time taken by a float to pass from one end to the other of the 50 feet channel; the float was released by a man wading through the channel. This surface velocity was reduced to mean velocity by multiplying with the constant from the above Table. The cross-sectional area was determined by sounding.

(2) **Krishna at Khodshi weir (Maharashtra) :**

The discharge at this site is determined by calculating the flow over the weir and the supply let into the canal. Any water escaped through the under-slucices is ignored.

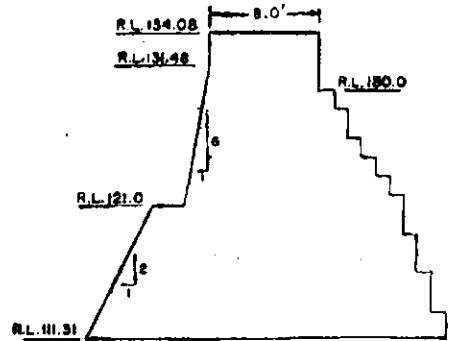
The alignment of the weir, in plan, is along a curve and its cross-section is shown in *Figure 1*.

Formerly, the discharge over the weir was being calculated by the formula $Q=2.97 LH^{3/2}$ but since the remodelling of the weir, it is worked out from the formula $Q=3.1(L-0.1NH)H^{3/2}$, to allow for end contractions. Free fall conditions always exist for flow over the weir.

The gauge from which the values of H are observed is situated on the left abutment of the Left Bank Canal. The gauge is thus set back considerably from the main river stream and the portion of the anicut over which the flow occurs. Canal withdrawals are based on a gauge discharge curve.

(3) **Krishna at karad (Maharashtra) :**

Generally the same as for (1) above, except that the floats were dropped from a bridge about 200 feet upstream of the site and not released by swimmers. The river bed at this site is reported to be erodible.



SECTION ACROSS KHODSHI WEIR

(4) Krishna at Chitapur (Mysore) :

At this site the discharge was calculated by the slope-area method. The velocities were worked out with Kutter's formula assuming a uniform surface slope S of 2.62 feet per mile for all stages of flow; the value of $N(k)$ was taken as 0.035 for all stages of flow and the cross-sectional area and the wetted perimeter for various gauge readings were taken from a table based on only one cross-section observed initially. The gauges were read once or twice a day. The bed of the river at this site is reported to be rocky.

(5) Krishna at Deosugur (Mysore) :

Same as for (4) above, except that the slope S adopted at this site was 3.0 feet per mile, for all stages of flow, but the values of $N(k)$ were varied, as follows, for different water levels in the river :

R. L. 1033.5 to 1075.5.....	$N(k)=0.035$
R. L. 1075.5 to 1092.5.....	$N(k)=0.030$
R. L. 1092.5 to 1101.5.....	$N(k)=0.025$
R. L. 1101.5 to 1108.5.....	$N(k)=0.020$

The site is reported to be rocky and not erodible.

(6) Krishna at Siddeswaram (Andhra Pradesh) :

The discharges were obtained from a gauge discharge curve, based on discharges computed by slope-area method. The surface slope was obtained from three sets of gauges observed daily and the value of Kutter's rugosity coefficient $N(k)$ was taken as 0.035 for all stages of flow. The site is reported to be stable.

(7) Krishna at Nagarjunasagar Dam (Andhra Pradesh) :

The slope-area method was used to calculate the river discharge up to January 1961; from February 1961, the area-velocity method is in use. The velocity was observed initially by surface floats but, since June 1961, current meter observations are being made.

In the slope-area method, the discharge of the river was calculated by using Manning's formula, adopting a uniform surface slope S , for all stages of flow, of 1/1346 (based on observations conducted on two days in July 1956), a constant unvarying river periphery and a fixed value of $N(m)$ of 0.035. A gauge-discharge curve was evolved and a working table prepared showing the discharges corresponding to any gauge. Gauges fixed on the bridge piers, on the upstream side, were read regularly. It is reported that the river bed has since undergone considerable change due to washing in of excavated spoil and debris.

The float method of observation was adopted at the time of diversion of flow through low blocks in the dam, the surface velocity in each low block being obtained by observing the time taken by wooden disc floats to traverse between two fixed points within the block. The depth of flow was obtained by sounding. The mean velocity was taken as 85% of the surface velocity; the latter, it is reported, was considerably disturbed.

In the current meter gauging, a cross-section taken at about 50 feet downstream of the bridge has been adopted for the cross-sectional areas. Surface velocity observations are made in one out of every three spans of the bridge and at three points in that span (in the middle, in the left third and in the right third) and the average is determined. The mean velocity is taken as 90% of the average surface velocity. The current meter is suspended from the top of the bridge. The reference gauges are the same as before, i.e. those fixed on the bridge piers, on the upstream side.

The bed of the river at the bridge site is reported to be rocky.

(8) Krishna at Vijayawada (Andhra Pradesh) :

(i) Gauges, upstream and downstream of the anicut and in the off-taking canals were regularly observed and recorded, three times a day, at 6, 12 and 18 hours. From these observations, the supplies withdrawn by the canals, the flow over different portions of the anicut, and the discharges passed through the anicut under-slucices were calculated and the sum total of all these components gave the total flow of the River Krishna at Vijayawada, the daily recorded discharge being the weighted average of the discharges at 6, 12 and 18 hours.

(ii) For the purpose of calculating the discharge over the anicut, the whole length was divided into the following five parts* (see Plate I) :

(a) The central portion of the anicut, 3,193.35 feet long, is in the form of a weir with a crest width of 6.0 feet with a 20 feet extension upstream at a slightly lower level (see Plate I). It had six feet high automatic

*This description applies up to 1960. From 1961, the new Krishna Barrage has come into operation and the flow conditions have changed.

shutters on top of the crest †. The top level of the shutters was R. L. 53.05 and the effective crest level, when the shutters were down, was R. L. 47.22.

- (b) The Vijayawada side level flank, 174.33 feet long with crest at R.L. 53.05.
- (c) The Vijayawada side sloping flank, 108.92 feet long with crest, rising from R.L. 53.05 to R.L. 57.40, at a slope of 1 in 25.04.
- (d) The Seethanagaram side level flank, 156 feet long, with crest at R.L. 53.05.
- (e) The Seethanagaram side sloping flank, 126 feet long, with crest rising from R.L. 53.05 to R.L. 58.30, at a slope of 1 in 24.

The position of the river gauges is shown in Plate I.

(iii) The discharge over the anicut was calculated as follows:—

(A) When the downstream water level was below the crest level of the anicut :

(a) any flow over the central portion of the anicut [(ii) (a) above] was calculated by the formula*:

$$Q=3.1L [(H+h_a)^{3/2}-h_a^{3/2}] \dots\dots\dots (1), \text{ in which}$$

L =effective length in feet of the central portion of the anicut, after taking into account any shutters standing ;

H =difference between the average of the readings of two upstream gauges (one on the right flank and the other on the left flank) and the crest level of the anicut (R.L. 47.22) ; and

†The crest level of the anicut was originally kept at R.L. 45.80. It was raised in the year 1891 to R.L. 46.80 and a temporary mud-wall two feet high was built over this crest to raise the water level to R.L. 48.80. In the year 1894, the temporary mud-wall was dispensed with and the crest-level was raised to R.L. 48.80. But this change was soon found to cause severe damage to the aprons of the anicut and hence, in 1897 the permanent crest was lowered to R.L. 46.80 and wooden planks three feet high were used on the crest to give the required water level. Again in 1898, the fixed crest of the anicut was raised to R.L. 47.05 and the three feet high automatic falling shutters were replaced by six feet automatic falling shutters of Zifton type. Each shutter was ten feet by six feet and 11 of them formed a set; there were 29 sets of shutters on the anicut.

During the floods of September 1952, the anicut breached in a length of 130 feet. Repairs were immediately taken up during the summer of 1952-53 and the damaged wall of the anicut was rebuilt as a cement concrete wall.

The present Krishna Barrage 3,400 feet long with 70 bays, each 40 feet wide, was constructed between 1952 and 1960. It is a regulator-cum-bridge about 104 feet upstream of the line of shutters of the anicut. The sill level of the barrage gates is R.L. 45.05 and their top level is R.L. 57.05, the gates being 12 feet high. The barrage came into operation from May 1961, the automatic falling shutters having been removed.

*It seems that prior to 1913, the velocity of approach was ignored and the coefficient was 3.5 instead of 3.1.

h_a —head due to velocity of approach. The velocity of approach was taken** as $0.44 H$ feet per second ; therefore,

$$h_a = v_a^2 / 2g = (0.44H)^2 / 2g = 0.003025H^2$$

- (b) Any flow over the level flanks [(ii) (b) and (d) above] was calculated by formula (1) above, taking H as equal to the difference between the upstream gauge on the flank concerned and the crest R.L. 53.05.
 - (c) Any flow over the sloping flanks [(ii) (c) and (e) above] was calculated by formula (1) above, ignoring the velocity of approach (i.e. taking $h_a=0$) and taking the average depth of water on the slope and the horizontal length of slope covered by water.
 - (d) Any flow over the standing shutters was also calculated by formula (1) above, taking H as the difference between the average of the gauge readings on both flanks and R.L. 53.05.
- (B) When the downstream water level was above the crest level of the anicut ;

(a) Any flow over the central portion of the anicut [(ii) (a) above] was calculated by the formula :

$$Q = 3.1L[(h+h_a)^{3/2} - h_a^{3/2}] + CLd\sqrt{2g(h+h_a)} \dots \dots \dots (2) \text{ in which } h \text{ represents the difference between the upstream and the downstream water levels (based on the two gauges upstream of the weir on each flank and only one gauge downstream of the weir on the right side).}$$

The value of the co-efficient C varies with value of d as follows* :

	C
For d , less than 5 feet,.....	0.60
„ from 5 feet to less than 6 feet.....	0.62
„ from 6 feet to less than 7 feet.....	0.66
„ from 7 feet to less than 8 feet.....	0.75
„ from 8 feet to less than 9 feet.....	0.84
„ from 9 feet to less than 10 feet.....	0.90
„ from 10 feet to less than 11 feet.....	0.93
„ from 11 feet and above.....	0.95

**Based on three ad-hoc observations of the river flow near the anicut, made in 1892-93.

*It seems that prior to 1917, C was taken as unity for all values of d .

The velocity of approach, in this case also, was taken $0.44H$, H being the depth of water over the crest. The head due to velocity of approach h_a , therefore, was $v_a^2/2g = (0.44H)^2/2g = 0.003025H^2$. From 1936†, however, a new table was introduced which gave lower values for h_a than by this formula. This may be illustrated by the following table :

H (feet)	Value of h_a adopted before 1936 (feet)	Value of h_a adopted after 1936 (feet)
6.0	0.11	0.11
10.0	0.30	0.28
12.0	0.44	0.35
15.0	0.68	0.44
17.0	0.87	0.48
19.0	1.09	0.49

(b) Any flow over the level flanks [(ii)(b) and (d) above] was calculated by formula (1) above, if the downstream water level was lower than R.L. 53.05, and by formula (2) above, if the downstream, water level was higher than R. L. 53.05. In the latter case, the value of d was taken with reference to the crest level of the horizontal flanks (R. L. 53.05) and the coefficient C and the value of h_a in the same manner as described under (a) above.

(c) Any flow over the sloping flanks [(ii)(c) and (e) above] was similarly calculated by formula (1) or formula (2) depending on the downstream water level; the effective length being determined as follows :

For the Vijayawada slope,

$$\text{Length} = \frac{[\text{Upstream water level} + \text{downstream water level} - 53.05]}{2} \times 25.039$$

For the Vijayawada steps,

$$\text{Length} = (\text{Upstream water level} - 57.40) \times 2.053$$

For the Seethanagaram slope,

$$\text{Length} = \frac{[\text{Upstream water level} + \text{downstream water level} - 53.05]}{2} \times 24$$

Based on the formulae and methods described above, appropriate tables had been framed to facilitate calculations.

(iv) The withdrawals by the canals taking off Vijayawada anicut were based on observed gauges in the canals and were calculated, from time to time, by the

†Chief Engineer, Irrigation letter No. 35/35-A. E. P. dated 12th December, 1936 (not made available to the Commission).

following formulae :

Name of Canal	1921-22 to 1927-28	1928-29 to 1930-31
Bander	$996.7G - 9745.3$	$244G^2 - 162G - 318$
Ryves	$1069G - 5553$	$18.4G^2 + 275.4G - 475$
Ellore	$1010G - 5394$	$8.7G^2 + 102.5G - 539$
Seethanagaram	$416G^2 - 50.8G - 446.8$	$27.1G^2 + 257G - 1917$

The method of calculation of canal withdrawals is not available for the Bander, Ryves and Ellore Canals from 1931-32 to 1935-36 and for the Seethanagaram Canal from 1931-32 to 1941-42. After these dates, the withdrawals were based on gauge-discharge curves which were revised from time to time.

(v) The discharges passed through the anicut under-sluices were calculated as follows :

(a) when the under-sluice gates were clear of water :

$$Q = 5L\sqrt{h} (H - 0.33h)$$

(b) when the under-sluice opening was wholly submerged :

$$Q = 5LD\sqrt{h}$$

(c) when the under-sluice opening was partially submerged :

$$Q = 3.1L (H^{3/2} - H_1^{3/2}) + 5LD\sqrt{h}$$

where

D = height of vent

h = difference between upstream and downstream water levels

H = upstream depth of water above sill and

H_1 = depth of shutter bottom below upstream water level.

(9) Koyna at Jalkewadi (Maharashtra) :

The discharges at this site are based on current meter gaugings taken from a cradle travelling along a cableway stretched across the river; velocities are determined at a depth of three inches from the surface and at every two feet thereafter. The width of the river is divided into six segments and velocities are observed in each. The mean velocity for each segment is determined by plotting the velocities for the different depths and dividing the area under the velocity curve by the depth at that section. The discharge for each segment is then computed and the total of the discharges for all segments gives the total discharge.

Velocity readings are also taken by surface floats for comparison with current meter readings and in times of floods when the use of current meter is not possible. The mean velocity is taken as 0.78 to 0.80 of the surface velocity.

The river bed at this site is reported to be not erodible.

(10) *Koyna at Helwak (Maharashtra) :*

Generally same as for (1) above, except that velocities were observed by current meter. The river bed is reported to be not erodible at this site.

(11) *Yerla at Yeralwadi (Maharashtra) :*

Generally same as for (1) above; the river bed is reported to be not erodible.

(12) *Yerla at Ramapur (Maharashtra) :*

Same as for (1) above, except that the cross-sections are taken yearly and sometimes more than once a year; the river bed is reported to be unstable.

(13) *Bhogawati (Panchganga) at Radhanagri (Maharashtra) :*

The discharge at this site is taken as the sum of the calculated discharges through the under-slucices, turbines, cross-drains etc. and the flow over the waste weir.

(14) *Ghataprabha at Hadalga (Maharashtra) :*

Generally same as for (1) above; the river bed is reported to be not erodible.

(15) *Ghataprabha at Duddi (Maharashtra) :*

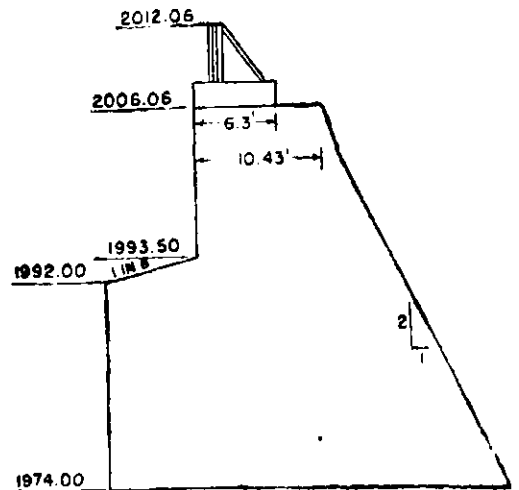
Same as for (1) above; the river bed is reported to be not erodible.

(16) *Ghataprabha at Dhupdal (Mysore) :*

The discharge at this site is determined from the calculated discharges let through various sluices in the weir at Dhupdal and the quantity flowing over the weir. For flow over the weir, the coefficient of discharge C is assumed as 0.67 in the formula $Q=2/3 C L \sqrt{2g} H^{3/2}$. Thus

$$Q=3.55 L H^{3/2}$$

In the middle portion of the weir, the river bed is deep and the conditions of flow are always "free-fall". On the sides, the river bed downstream of the weir is relatively high and, during high flow, "free-fall" conditions do not occur there. The reference gauge is fixed on only one side of the weir, on the left abutment. The section of the weir is shown in Figure 2



SECTION ACROSS DHUPDAL WEIR

Figure 2

(17) *Ghataprabha at Chinchikundi (Mysore)* :

Generally the same as for (1) above. The cross-section was taken once and velocities were observed at three points instead of five. The observations, it is stated, were made by untrained personnel and the site is reported to be erodible.

(18) *Ghataprabha at Anagwadi (Mysore)* :

Same as for (17) above.

(19) *Ghataprabha at Murmultisangam (Mysore)* :

Same as for (17) above. The readings at the site were subject to possible back flow from the Krishna.

(20) *Hiranyakeshi (Ghataprabha) at Ajra (Maharashtra)* :

Same as for (1) above; the river bed is stated to be not erodible.

(21) *Markandeya (Ghataprabha) at Basapur (Mysore)* :

Same as for (17) above.

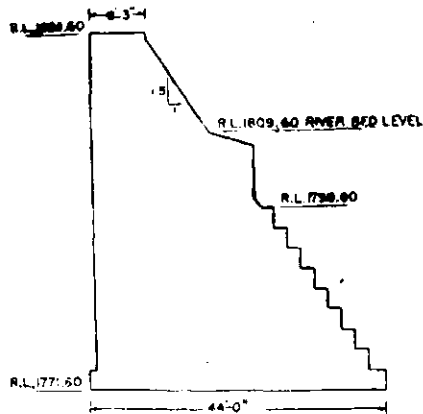
(22) *Malaprabha at Asoga (Mysore)* :

Same as for (17) above. The river bed at this site is stated to be rocky and not erodible.

(23) *Malaprabha at Kolchi (Mysore)*:

Same as for (1) above until the year 1956. Since then, the discharges are based on overflow over the weir, calculated from the formula $Q=3.11 LH^{3/2}$, and the canal withdrawals.

The section of the weir is shown in Figure 3. Free-fall conditions occur during low flow but the weir is submerged during high discharges.



SECTION ACROSS KOLCHI WEIR

Figure 3

(24) *Malaprabha at Hiresangam (Mysore)* :

Same as for (17) above; the readings are likely to be subject to effect of back flow from the Krishna.

(25) *Bhima at Chaskaman (Maharashtra)* :

Same as for (1) above ; the river bed is stated to be not erodible at this site.

(26) *Bhima at Dhond (Maharashtra)* :

Only hot weather discharges were observed as per (1) above ; the river bed is stated to be not erodible.

(27) *Bhima at Yadgir (Mysore)* :

The discharges were calculated by the slope-area method adopting a uniform surface slope of 3.0 feet per mile and values of $N(k)$ as follows :

	<i>R. L.</i>		<i>R. L.</i>	<i>N(k)</i>
from	1148	to	1184	0.035
from	1184	to	1194	0.030

Cross-sectional areas and wetted perimeters for various gauge readings were taken from a table based on a cross-section observed initially, about 500 feet below the bridge, at this site. The reference gauge is on the upstream side of the bridge piers on the left side. The site is stated to be erodible in parts.

(28) *Bhama (Bhima) at Waki (Maharashtra)* :

Same as for (1) above ; the river bed at the site is stated to be erodible.

(29) *Kudil (Bhima) at Wadivale (Maharashtra)* :

Same as for (1) above ; the river bed is stated to be erodible at this site.

(30) *Vel (Bhima) at Shikrapur (Maharashtra)* :

Same as for (1) above ; the river bed is stated to be erodible at this site.

(31) *Mula-Mutha (Bhima) at Pimpalgaon Rahu (Maharashtra)* :

Same as for (26) above ; the river bed is stated to be erodible at this site.

(32) *Mula (Bhima) at Mulshi Dam (Maharashtra)* :

The discharge at this site is calculated from the inflows into the reservoir and the draw-offs for power generation from the lake. The 'content table' gives inflow into the lake corresponding to the daily gauge readings.

(33) *Mutha (Bhima) at Khadakwasla (Maharashtra)* :

From the daily water-levels observed in the lake, the contents of the lake are determined by referring to the 'content table'. Discharges through various sluices in the dam, leakage and other losses etc., for every day, are recorded in a statement. From these, the discharges at this site are worked out.

- (34) Ghod (Bhima) at Nirgudsar (Maharashtra) :
Same as for (1) above ; the river bed at the site is stated to be not erodible.
- (35) Mina (Bhima) at Wadgaon (Maharashtra) :
Same as for (1) above ; the river bed at the site is stated to be not erodible.
- (36) Kukdi (Ghod) at Edgoon (Maharashtra) :
Generally same as for (1) above ; the condition of the river bed is not known.
- (37) Hanga (Ghod) at Vlsapur (Maharashtra) :
Same as for (82) above.
- (88) Nira (Bhima) at Natambi (Maharashtra) :
Same as for (1) above ; the river bed at the site is stated to be not erodible.

RL 189.50 (A.M.F.L.)

- (39) Nira (Bhima) at Vir
(Maharashtra) :

The discharges are based on the flows over the weir (calculated by the formula $Q=3.09 L.H^{3/2}$) and the withdrawals in the sluices. Generally, free-fall conditions occur at the weir. The cross-section of the weir is shown in Figure 4.

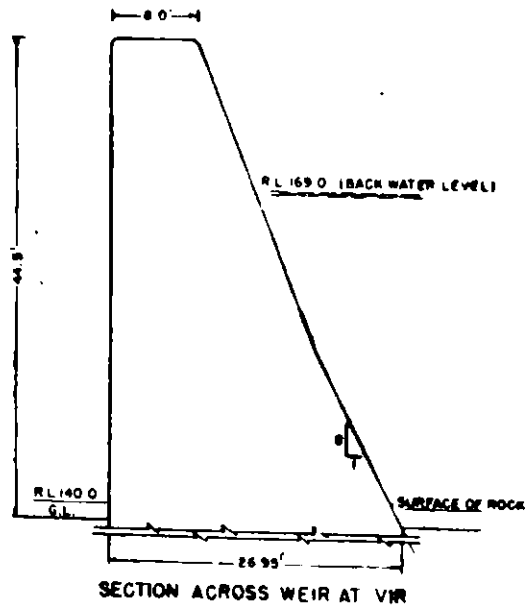


Figure 4

- (40) Nira (Bhima) at Sarati (Maharashtra) :
Same as for (1) above ; the river bed is, however, stated to be erodible.
- (41) Nira (Bhima) at Narasingpur (Maharashtra) :
Same as for (26) above ; the river bed is stated to be stable and inerodible.

(42) **Yelwandi (Nira-Bhima) at Bhatghar (Maharashtra) :**

Same as for (33) above.

(43) **Gunjawani (Nira-Bhima) at Mohri (Maharashtra) :**

Same as for (1) above ; the river bed is stated to be not erodible at this site.

(44) **Sina (Bhima) at Hatwalan (Maharashtra) :**

Same as for (1) above ; the river bed is stated to be not erodible at this site.

(45) **Sina (Bhima) at Wadakbal (Maharashtra) :**

Same as for (26) above; the river bed is, however, stated to be erodible.

(46) **Ekruk Nalla (Sina-Bhima) at Ekruk (Maharashtra) :**

Same as for (33) above.

(47) **Tungabhadra at Hallur (Mysore) :**

Same as for (17) above.

(48) **Tungabhadra at Harihar (Mysore) :**

Same as for (17) above.

(49) **Tungabhadra at Havanur (Mysore) :**

Same as for (17) above. About half the river is stated to be erodible and the rest rocky and not erodible.

(50) **Tungabhadra at Hesrur (Mysore) :**

Same as for (17) above.

(51) **Tungabhadra at Tungabhadra Dam (Mysore) :**

Prior to the construction of the Tungabhadra Dam at Mallapuram across Tungabhadra, the flow in Tungabhadra was determined at the Vallabhapur-Koregal site, about seven miles upstream of Mallapuram. At this site, there were two anicuts separated by an island; the zigzag 1,699 feet long Koregal anicut on the left flank of the island and the 1,150 feet long straight Vallabhapur anicut on the right, both being oblique to the axis of the river. Due to the peculiar features of the anicut, the usual formulae for calculating overflow over the weir were not considered to be appropriate. To get at a correct and reliable assessment of the discharge at this site, the then Mysore, Madras and Hyderabad Governments, during the period 1935-36 and 1936-37, jointly conducted current meter observations*

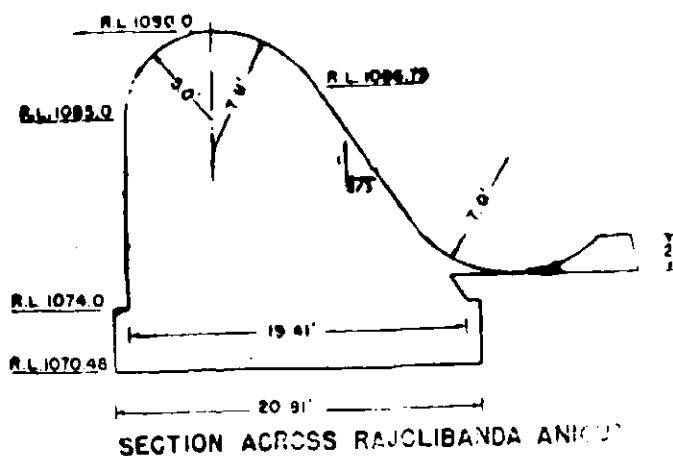
*The current meter observations were made from platforms constructed on coracles (8 feet to 11 feet diameter and suitably placed so as not to interfere with free flow of water). The current meters were cable-suspended with fish weights of 30 lbs.

at Mutkur village, about 8 miles upstream of the anicut, and correlated the anicut gauges with the gauges at Mutkur. Two independent discharge tables were established one for the gauge at the Vallabhapur anicut and the other for the Koregal anicut gauge by reference to the gauge calibration curve at Mutkur. The average between these two sets of discharges at any given time was taken as representing the discharge over the two anicuts. The discharges past these anicuts for the years for which gauge readings were available were derived from the jointly accepted table of discharges.

Since the construction of the Tungabhadra dam, the Vallabhapur-Koregal anicuts have been submerged and the discharge at the dam site is calculated from the inflow into the reservoir, based on capacity table, and the outflow through various sluices in the dam.

(52) Tungabhadra at Rajolibanda (Mysore) :

The discharge at this site is the sum total of the quantity let down through various sluices and the flow over the anicut, calculated by the formula $Q=3.5LH^{3/2}$. The section of the weir is shown in Figure 5. The conditions of flow over the weir are free-fall.



(53) Tungabhadra at Sunkesala (Andhra Pradesh)

Daily discharge is the sum of the discharges over the anicut and through the under-sluices and the head-sluices corresponding to the gauge reading recorded.

The discharge over the anicut is the sum of discharges passing over the two sections of the anicut. The south anicut is zigzag while the north anicut is more or less straight and both the anicuts are oblique to the current. The total oblique lengths of the south and north anicuts are 3,985 feet (at a crest level of R. L. 944.81) and 319 feet (at a crest level of R. L. 947.81) respectively.

Prior to April 1916, the discharge over the anicut was calculated by the formula $Q=3.1LH^{3/2}$, (L being the oblique length), neglecting the velocity of approach.

From April 1916 to March 1920, the formula used was $Q=3.1L[(H+ha)^{3/2}-ha^{3/2}]$ wherein ha was obtained from the equation $3.1L[(H+ha)^{3/2}-ha^{3/2}]=L(DH)\sqrt{a}$; the value of D , or mean depth of the river below the crest level of the anicut, was taken as 4.4 feet and 4.2 feet

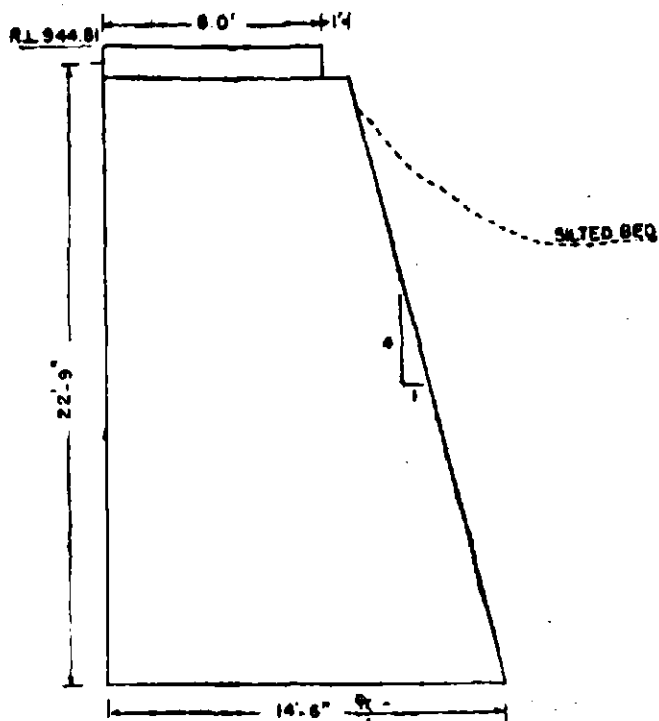
for the south and north anicuts respectively. L was taken as the oblique length of the anicut.

For the year 1920-21, the value of D in the above equation was taken as 2.39 feet for both the anicuts, and from 1921 to March 1936, the value of D was taken as 2.4 feet. From 1920, the value of L was taken as 2,130 feet and 900 feet for the south and north branches respectively, equal to their lengths perpendicular to the axis of the river.

Since April 1936, the discharges over the anicut are computed from a table of discharges, prepared from calibration curves based on the 1935-37 current meter gaugings** conducted jointly by the then Madras, Mysore and Hyderabad Governments.*

The draw-offs through the sluices were computed from the table of discharges based on the inter-state gaugings of 1935-36; current meter gaugings were again conducted in 1956-57 to 1958-59 and a fresh table of discharges has been prepared and is being used from 1958-59.

The reference gauge is in a well on the right upstream abutment of the anicut. The cross-section of the anicut is shown in *Figure 6*



SECTION ACROSS SUNKESULA ANICUT

Figure 6

**The current meter observations were made at Bavapuram, 9 miles below Sunkesala anicut, from platforms constructed on coracles. The gauge at Bavapuram was calibrated and correlated to the upstream gauge at Sunkesala anicut.

*Three feet high automatic falling shutters are being fixed over the crest of the anicut. At places where the shutters cannot be fitted, three feet high masonry walls are built; the total length of such walls is about 200 feet, the length of the anicut perpendicular to the axis of the river being 3,030 feet.

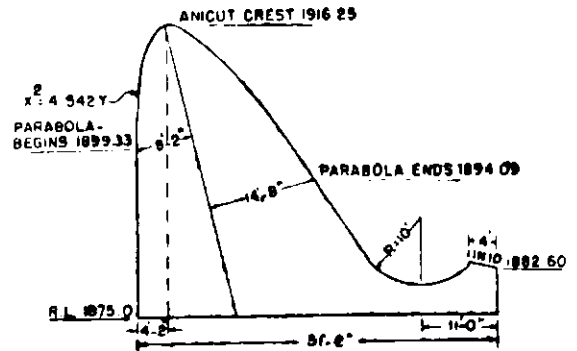
It is reported that the upstream gauge will be recalibrated taking note of the afflux due to the masonry portion added over the crest of the anicut.

(54) Tunga (Tungabhadra) at Tunga anicut (Mysore) :

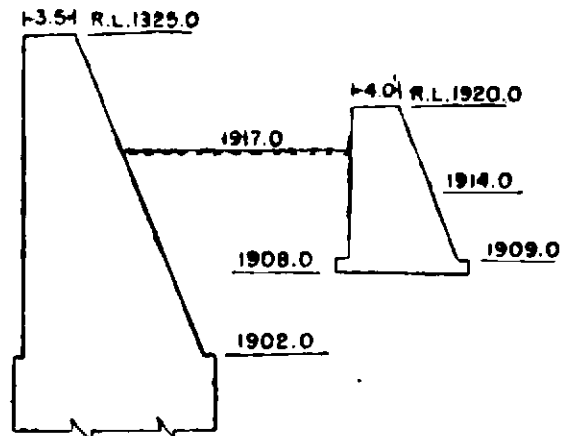
The discharges at Sacrebyle, a mile upstream of the present Tunga anicut, were based on current meter observations; no other particulars are available. Since the construction of the Tunga anicut, which has submerged the Sacrebyle site, the discharge at Tunga anicut is taken as the sum of the flow over the anicut and that passed through the sluices. The discharge over the anicut is calculated by taking the coefficient C as 4.12 for the Ogee portion and 3.1 for the broad-crested portion in the formula $Q=CLH^{3/2}$. The sections of the anicut are shown in Figure 7. The conditions of flow over the anicut are free-flow.

(55) Bhadra (Tungabhadra) at Lakkavalli (Mysore) :

Daily discharges were computed on the basis of a gauge-discharge table calibrated for this site; no particulars are available of the method of calibration. Since the construction of the Lakkavalli dam, the discharges are computed from the inflows into the reservoir, read from capacity table, corresponding to daily gauge readings.



SECTION ACROSS TUNGA ANICUT-OGEE PORTION

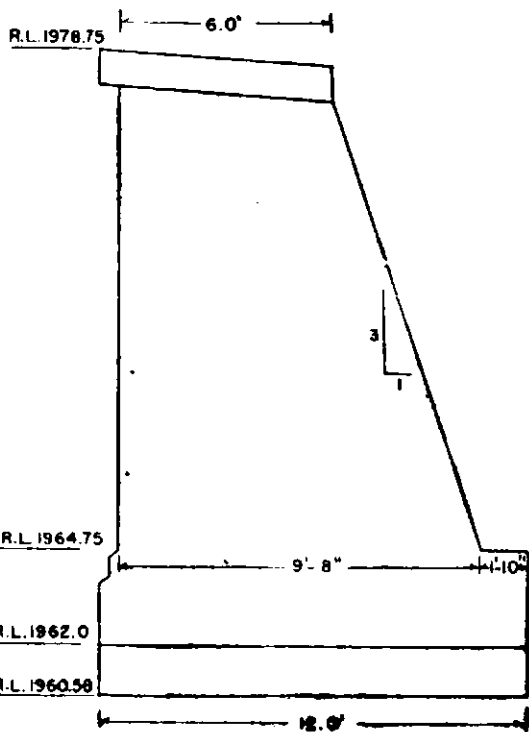


SECTION ACROSS TUNGA ANICUT (BROAD CRESTED PORTION)

Figure 7

(56) *Bhadra (Tungabhadra) at Bhadra Anicut (Mysore) :*

The recorded discharge is the sum of the flow over the anicut and the draw off through the sluices. The discharge over the weir is calculated by the formula $Q = 3.1L[(T + h_w)^{3/2} - h_w^{3/2}]$, assuming the velocity of approach as 3 feet per second. Generally freefall conditions occur at the weir. The cross-section of the anicut is shown in *Figure 8*.



SECTION ACROSS BHADRA ANICUT

Figure 8

(57) *Vavala (Tungabhadra) at Banavasi (Mysore) :*

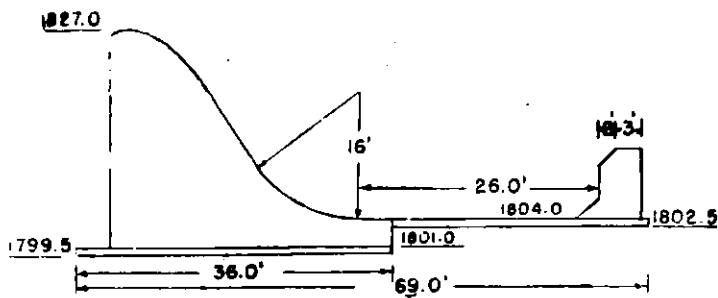
Same as for (17) above.

(58) *Hagari (Tungabhadra) at Vani Vilas Sagar (Mysore) :*

Same as for (33) above.

(59) *Hagari (Tungabhadra) at Naranapur Anicut (Mysore) :*

Daily discharges are computed from the weir discharges, calculated by the formula $Q = 3.93LH^{3/2}$, and the draw-offs through the sluices. Generally, clear overfall conditions occur at the weir. The cross-section of the anicut is shown in *Figure 9*.



SECTION ACROSS NARANAPUR ANICUT

Figure 9

(60) *Hagari at Bhairavanthippa (Andhra Pradesh) :*

Same as for (33) above.

(61) *Dindi at Gundlapalli Dam (Andhra Pradesh) :*

Same as for (33) above.

(62) *Palleru at Palleru (Andhra Pradesh) :*

Same as for (33) above.

KRISHNA RIVER

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 1

River **Krishna**

Site **Dhom**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1907-08 . . .	213	2,477	5,790	2,027	1,101	50	31.0
08-09 . . .	35	5,741	5,699	1,899	576	118	37.5
09-10 . . .	402	5,521	1,247	470	146	37	20.8
10-11 . . .	623	3,177	6,564	2,718	2,290	188	41.3
1911-12 . . .	767	2,045	2,706	1,219	21	13	18.0
12-13 . . .	105	7,100	4,148	761	540	273	34.5
13-14 . . .	3,602	4,100	2,113	1,099	183	63	29.5
14-15 . . .	140	7,861	5,457	1,910	334	93	42.2
15-16 . . .	1,434	3,653	3,204	1,864	644	90	28.8
1916-17 . . .	625	938	3,228	1,049	320	271	17.0
17-18 . . .	654	1,571	1,750	1,236	498	92	15.3
18-19 . . .	72	352	1,521	439	31	13	6.4
19-20 . . .							
20-21 . . .							
1921-22 . . .							
22-23 . . .	486	3,301	1,416	697	92	288	16.6
23-24 . . .	1	3,161	2,704	537	58	11	17.3
24-25 . . .	25	1,640	2,790	749	166	36	14.4
25-26 . . .	375	2,327	783	302	80	13	10.3
1926-27 . . .	1	1,939	2,961	982	81	29	8.8
17 Years' Mean	562	3,347	3,181	1,174	421	99	22.9

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 1

River Krishna

Site Dhom

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
1907-08 . . .	10	Nil	Nil	Nil	Nil	Nil	Nil	31.0
08-09 . . .	16	”	”	”	”	”	”	37.5
09-10 . . .	20	”	”	”	”	”	0.1	20.9
10-11 . . .	33	35	33	33	33	34	0.6	41.9
1911-12 . . .	12	6	4	2	2	2	Nil	18.0
12-13 . . .	78	20	7	5	4	3	0.3	34.8
13-14 . . .	24	5	4	2	2	2	0.1	29.6
14-15 . . .	35	Nil	Nil	Nil	Nil	Nil	0.1	42.3
15-16 . . .	18	”	”	”	”	”	Nil	28.8
1916-17 . . .	22	Nil	Nil	Nil	Nil	Nil	0.1	17.1
17-18 . . .	31	”	”	”	”	”	0.1	15.4
18-19 . . .	7	6	4	4	4	4	Nil	6.4
19-20 . . .								
20-21 . . .								
1921-22* . . .		10	8	7	6	11		
22-23 . . .	37	Nil	Nil	Nil	Nil	5	0.1	16.7
23-24 . . .	7	6	5	4	4	3	Nil	17.3
24-25 . . .	12	8	6	5	2	3	”	14.4
25-26 . . .	4	2	2	2	1	1	”	10.3
1926-27 . . .	11	7	6	4	3	3	Nil	8.8
17 Years' Mean	22	6	4	4	3	4	0.1	23.0

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 2

River **Krishna**

Site **Khodshi**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1947-48*						208	
48-49	212	6,141	7,585	1,713	1,070	3,578	53.8
49-50	309	6,009	10,045	4,101	802	259	57.2
50-51*	320	8,946					
1951-52	1,194	3,082	6,203	1,005	1,257	142	34.4
52-53	4,839	10,688	9,882	454	1,649	221	73.8
53-54	2,994	8,737	13,381	1,666	1,247	370	75.6
54-55	514	11,123	7,957	3,811	812	216	65.1
55-56	2,078	5,810	7,573	9,331	9,658	986	94.0
1956-57	758	15,008	15,361	2,726	5,378	1,285	108.1
57-58	1,450	10,314	8,338	2,875	3,279	8,697	92.5
58-59	733	16,134	6,527	5,456	809	245	79.5
59-60	1,425	23,105	9,622	9,038	1,451	2,207	124.4
60-61	1,727	11,953	13,504	7,197	1,650	763	97.8
12 Years' Mean	1,519	10,675	9,665	4,114	2,422	1,581	79.7

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 2

River **Krishna**

Site **Khodshi**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1947-48*	196	141	134	77	133	71	1.9	
48-49	573	185	78	91	133	389	3.7	57.5
49-50	106	87	553	879	661	527	7.3	64.5
50-51*				47	51	54		
1951-52	110	49	31	37	27	59	0.9	35.3
52-53	91	145	37	27	403	74	2.0	75.8
53-54	230	572	184	216	145	511	4.9	80.5
54-55	261	178	166	75	176	169	2.8	67.9
55-56	147	180	175	194	908	476	5.5	99.5
1956-57	222	188	193	155	216	516	4.0	112.1
57-58	375	156	178	168	192	951	5.2	97.7
58-59	181	110	102	128	118	966	4.2	83.7
59-60	560	219	269	223	323	724	6.1	130.5
60-61	709	260	172	146	139	3,743	13.8	111.6
12 Years' Mean	297	194	178	195	287	759	5.0	84.7

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 3

River Krishna

Site Karad

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1950-51*			20,370	15,411	8,694		
1951-52	8,825	21,867	21,465	4,465	3,238	439	160.4
52-53	4,254	47,817	41,179	4,104	2,005	51	265.5
53-54	11,639	53,577	49,818	8,371	5,921	584	346.2
54-55	2,698	40,532	43,223	22,728	8,382	558	314.2
55-56	5,908	29,111	37,913	28,962	15,135	3,080	318.4
1956-57	65,823	57,245	38,790	10,440	10,156	3,037	490.0
6 Years' Mean	16,524	41,692	38,731	13,178	7,437	1,292	315.8

SERIAL No. 4

River Krishna

Site Chitapur

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1958-59	28,220	211,225	86,146	73,189	31,713	6,418	1,160.7

SERIAL No. 5

River Krishna

Site Deosugur

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1958-59		325,693	175,176	158,343	74,043	43,758	

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 3

River Krishna

Site Karad

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1950-51*	284	114			13	12		
1951-52	152	46	13	4	1	5	0.5	160.9
52-53	48	23	9	3	30	5	0.3	265.8
53-54	167	133	116	103	75	61	1.8	348.0
54-55	106	44	46	48	79	141	1.2	315.4
55-56	2,417	2,597	1,213	950	2,746	2,838	33.7	352.1
1956-57	422	569	888	910	586	610	10.2	500.2
6 Years' Mean	552	569	381	336	586	610	8.0	323.8

SERIAL No. 4

River Krishna

Site Chitapur

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1958-59	6,418	4,494	1,180	530	1,177	1,945	41.8	1,202.5

SERIAL No. 5

River Krishna

Site Deosugur

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1958-59	34,421	31,974	29,894	24,254	25,980	27,895	457.1	

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 6

River **Krishna**

Site **Biddaswaram**

Year	Mean discharge (Cusecs)						Volume (June to Nov.) T.M.C
	June	July	Aug.	Sep.	Oct.	Nov.	
1948-49	22,859	103,016	250,706	108,385	77,548	66,190	1,666.9
49-50	16,955	105,794	144,613	86,780	81,161	17,187	1,201.4
50-51	20,510	38,518	173,456	190,158	147,235	28,749	1,582.8
1951-52	57,560	140,755	174,801	84,105	54,553	19,765	1,409.7
52-53	31,248	137,482	261,410	58,933	88,781	11,973	1,571.0
53-54*	24,435	245,648					
5 Years' Mean	29,826	105,113	200,997	105,672	89,856	28,773	1,486.4

SERIAL No. 7

River **Krishna**

Site **Below Nagarjunasagar Dam**

Year	Mean discharge (Cusecs)						Volume (June to Nov.) T.M.C.
	June	July	Aug.	Sep.	Oct.	Nov.	
1956-57*			229,367	148,323	222,423	131,267	
57-58*		241,759	263,148	134,940	100,289	71,580	
58-59	25,495	413,019	217,723	205,017	76,000	17,157	2,534.9
59-60	237,273	469,487	210,542	228,397	99,200	32,025	3,377.1
60-61	53,533	182,218	258,845	237,163	133,755	67,870	2,469.0
8 Years' Mean	105,434	354,908	229,037	223,526	102,985	39,017	2,798.7

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 6

River Krishna

Site Siddeswaram

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
1948-49	26,687	8,024	4,617	2,360	1,473	3,095	122.6	1,789.5
49-50	4,419	2,881	2,025	1,154	341	164	28.8	1,230.2
50-51	10,261	2,912	1,097	523	1,403	522	44.4	1,627.2
1951-52	7,065	1,697	991	375	200	42,652	141.6	1,551.3
52-53	5,082	1,103	647	184	219	1,351	22.9	1,593.9
53-54								
5 Years' Mean	10,703	3,323	1,875	919	727	9,557	72.1	1,558.5

SERIAL No. 7

River Krishna

Site Below Nagarjunasagar Dam

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
1956-57*	38,800	21,500	15,295	18,234				
57-58*	19,148	13,457	13,805	13,614	14,165	20,570	249.7	
58-59	13,455	11,063	9,893	9,332	9,180	9,487	163.7	2,698.6
59-60	22,653	30,923	14,548	12,576	11,363	23,969	307.4	3,684.5
60-61	44,250	35,461	7,353	5,174	5,420	14,224	297.3	2,766.3
8 Years' mean	26,786	25,816	10,598	9,027	8,654	15,893	256.1	3,040.8

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 8

River **Krishna**

Site **Vijayawada**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1901-02	40,354	205,302	308,604	86,787	45,354	13,577	1,862.8
02-03	17,143	175,264	92,645	230,073	52,494	35,894	1,591.8
03-04	21,210	239,504	327,133	205,766	231,680	42,999	2,838.0
04-05	38,936	231,304	133,362	96,530	56,188	12,773	1,511.6
05-06	11,853	119,389	158,128	64,510	32,196	7,837	1,047.7
1905-07	36,984	155,959	194,948	176,505	45,821	9,730	1,641.1
07-08	13,925	130,496	402,116	95,642	68,668	7,550	1,914.0
08-09	1,444	245,482	282,495	219,353	52,750	8,774	2,150.4
09-10	45,694	259,001	197,310	136,370	47,286	8,308	1,842.3
10-11	2,602	148,666	210,839	193,609	159,381	54,152	2,038.7
1911-12	35,122	134,065	155,351	91,176	28,735	7,366	1,198.6
12-13	3,226	151,413	309,539	93,373	70,884	18,120	1,721.9
13-14	61,511	215,348	179,444	65,597	58,201	7,886	1,563.1
14-15	11,205	271,883	439,471	208,049	66,307	12,591	2,683.8
15-16	10,655	174,443	240,757	136,085	185,683	41,051	2,096.0
1916-17	50,645	179,412	322,667	242,637	114,606	334,052	3,277.8
17-18	56,040	126,339	181,900	289,939	211,687	92,091	2,528.1
18-19	19,858	36,944	105,627	91,093	16,577	7,236	732.7
19-20	52,804	113,766	210,103	171,232	127,351	45,093	1,906.1
20-21	17,341	214,210	153,729	74,109	47,961	5,483	1,365.1
1921-22	14,918	99,640	298,478	111,442	95,934	42,438	1,760.9
22-23	13,781	219,234	204,669	86,141	43,160	70,196	1,691.9
23-24	1,689	255,740	319,332	128,108	41,741	8,473	2,010.6
24-25	9,914	202,789	197,290	208,635	72,841	12,341	1,865.2
25-26	10,199	263,280	187,448	95,335	110,393	10,668	1,804.2
1926-27	3,573	133,653	336,160	177,056	54,398	7,484	1,891.7
27-28	22,579	228,622	219,834	157,763	83,952	43,762	2,006.8
28-29	28,259	106,610	197,531	214,144	140,189	23,966	1,880.5
29-30	20,854	201,108	138,616	109,268	136,174	10,856	1,640.0
30-31	9,743	207,046	183,389	166,188	90,633	50,906	1,876.6
30 Years' Mean	22,804	181,530	229,630	147,417	86,308	35,122	1,864.7

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 8

River Krishna

Site Vijayawada

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec.to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1901-02	3,152	1,632	1,233	606	299	413	19.3	1,882.1
02-03	36,800	7,450	2,156	1,048	610	650	129.9	1,721.7
03-04	18,154	3,603	1,774	935	407	541	67.7	2,905.7
04-05	3,037	1,853	423	153	96	694	16.6	1,528.2
05-06	2,246	1,550	2,013	933	164	51	18.1	1,065.8
1906-07	4,681	7,899	1,631	1,141	841	6,831	61.2	1,702.3
07-08	4,806	3,064	1,483	875	729	123	29.3	1,943.3
08-09	3,019	2,303	1,508	1,047	1,104	1,603	27.9	2,178.3
09-10	3,601	1,729	67	Nil	333	10	15.3	1,857.6
10-11	9,849	4,740	2,385	764	466	138	48.5	2,087.2
1911-12	5,397	755	Nil	3	46	1,022	19.3	1,217.9
12-13	8,965	2,673	247	Nil	291	506	34.0	1,755.9
13-14	2,945	216	Nil	„	1,059	156	11.6	1,574.7
14-15	6,186	8,360	3,590	4,465	709	2,155	67.3	2,751.1
15-16	8,598	5,205	2,579	2,140	306	81	50.1	2,146.1
1916-17	37,826	18,238	10,832	3,768	2,172	1,243	195.3	3,473.1
17-18	25,645	8,899	5,056	2,083	1,125	7,875	134.3	2,662.4
18-19	11,554	1,706	706	203	442	2,210	44.7	777.4
19-20	9,073	3,611	2,123	484	368	314	42.4	1,948.5
20-21	1,370	1,022	622	584	38	816	13.1	1,378.2
1921-22	4,222	3,493	1,299	340	110	519	26.4	1,787.3
22-23	18,693	2,346	1,103	1,508	1,662	559	68.9	1,760.8
23-24	2,282	1,071	441	144	17	113	10.8	2,021.4
24-25	4,107	1,667	702	345	871	18,743	70.6	1,935.8
25-26	4,852	1,956	2,009	1,539	757	1,206	32.4	1,836.6
1926-27	2,759	1,073	501	214	62	58	12.5	1,904.2
27-28	6,063	2,314	1,763	846	680	507	32.3	2,039.1
28-29	5,520	2,915	1,728	1,021	650	3,025	39.3	1,919.8
29-30	3,925	1,199	251	149	212	44	15.4	1,655.4
30-31	5,594	2,160	582	294	253	328	24.6	1,901.2
30 Years' Mean	8,847	3,557	1,694	921	563	1,750	46.0	1,910.7

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 8

River Krishna

Site Vijayawada

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1931-32	19,795	192,410	311,499	202,270	148,778	59,261	2,477.4
32-33	10,126	172,741	275,674	191,441	105,090	100,773	2,266.2
33-34	48,986	150,081	333,895	241,574	145,348	45,012	2,555.5
34-35	4,423	193,656	262,951	84,030	52,050	46,810	1,713.0
35-36	18,478	116,533	168,337	191,405	68,907	32,802	1,576.6
1936-37	10,110	180,648	182,938	104,220	87,738	39,692	1,608.0
37-38	6,767	225,759	169,395	88,843	123,088	17,786	1,682.0
38-39	60,578	232,744	155,935	166,810	175,350	14,274	2,137.2
39-40	9,940	210,317	134,702	180,591	62,008	39,616	1,686.9
40-41	16,295	205,722	242,580	96,242	79,702	17,884	1,752.3
1941-42	16,310	210,000	108,969	97,107	56,257	5,729	1,313.9
42-43	38,345	217,186	214,356	98,372	22,292	6,195	1,586.0
43-44	27,029	214,110	139,817	131,042	161,774	28,233	1,864.3
44-45	16,092	196,196	190,825	99,131	65,053	61,489	1,668.8
45-46	5,936	206,881	176,804	105,463	49,011	9,890	1,473.4
1946-47	28,851	171,588	355,289	141,590	68,958	49,029	2,164.8
47-48	16,463	140,787	209,317	267,176	111,397	14,869	2,009.8
48-49	8,394	134,893	241,817	126,963	104,671	68,729	1,818.4
49-50	15,351	127,355	190,171	267,882	133,834	27,301	2,014.5
50-51	17,587	190,437	218,242	202,798	130,088	21,319	2,069.6
1951-52	32,153	142,908	196,082	72,306	94,954	11,369	1,462.5
52-53	21,065	114,579	242,320	41,338	78,551	7,993	1,348.9
53-54	14,057	232,953	290,247	145,207	172,163	57,783	2,425.0
54-55	8,891	210,024	253,313	152,157	85,711	17,382	1,933.1
55-56	15,965	130,199	271,425	232,562	219,783	55,712	2,453.0
1956-57	12,088	419,747	401,545	141,252	224,882	133,779	3,546.3
57-58	26,814	231,097	295,916	129,721	79,720	51,101	2,163.3
58-59	8,858	432,339	213,631	202,875	83,634	11,942	2,535.5
59-60	27,898	423,193	244,677	242,508	117,388	20,716	2,857.8
60-61	18,380	150,682	290,340	325,373	112,591	19,973	2,425.6
30 Years' Mean	19,491	205,949	232,769	159,010	107,359	36,481	2,019.7
60 Years' Mean	21,102	193,740	231,200	153,214	96,833	35,802	1,942.2

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 8

River **Krishna**

Site **Vijayawada**

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
1931-32	11,771	4,819	2,286	1,179	776	374	56.3	2,533.7
32-33	14,956	5,268	2,897	1,806	2,865	11,673	104.7	2,370.9
33-34	15,168	8,936	3,516	1,896	1,281	1,129	84.4	2,639.9
34-35	6,935	3,720	3,330	1,166	1,829	416	45.6	1,758.6
35-36	5,417	3,135	3,708	1,735	1,970	1,439	45.8	1,622.4
1936-37	7,616	2,574	2,320	974	7,186	5,412	68.5	1,676.5
37-38	3,509	1,858	824	214	1,640	421	22.4	1,704.4
38-39	4,699	3,187	1,564	587	362	27	27.5	2,164.7
39-40	5,512	2,114	1,027	461	284	27,654	99.1	1,736.0
40-41	8,424	5,714	3,338	956	283	829	51.5	1,803.8
1941-42	2,853	1,756	1,235	891	322	588	20.1	1,334.0
42-43	3,381	5,926	2,540	640	150	21,928	91.9	1,677.9
43-44	8,211	5,083	2,365	2,500	1,686	396	55.0	1,919.3
44-45	6,012	2,612	1,452	755	918	523	32.4	1,701.2
45-46	3,355	1,746	803	651	294	376	19.1	1,492.5
1946-47	14,151	4,762	2,204	1,110	159	23	59.5	2,224.3
47-48	6,254	3,459	1,706	950	1,265	5,540	51.0	2,050.8
48-49	28,983	5,366	3,009	1,294	436	108	104.2	1,922.6
49-50	6,005	3,701	2,195	1,127	503	182	36.1	2,050.6
50-51	4,947	2,651	1,363	679	1,036	108	28.5	2,098.1
1951-52	4,807	1,371	916	484	233	37,253	120.6	1,583.1
52-53	4,239	1,217	585	143	549	75	18.1	1,367.0
53-54	8,412	4,889	3,603	6,097	3,245	1,878	74.0	2,499.0
54-55	6,737	4,938	4,822	6,067	4,438	7,278	90.1	2,023.2
55-56	10,301	5,350	4,740	3,645	5,228	6,790	95.4	2,548.4
1956-57	31,590	10,434	7,364	7,413	6,117	5,069	179.7	3,726.0
57-58	11,950	5,416	4,978	3,976	4,113	8,114	101.5	2,264.8
58-59	7,556	4,319	6,737	3,913	5,589	6,585	90.7	2,626.2
59-60	8,615	6,060	7,119	7,179	4,956	8,048	110.7	2,968.5
60-61	9,603	5,320	6,648	4,952	4,500	7,954	102.3	2,527.9
80 Years' Mean	9,066	4,255	3,057	2,181	2,141	5,606	69.6	2,089.3
60 Years' Mean	8,956	3,906	2,375	1,551	1,352	3,678	57.8	2,000.0

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 9

River **Koyna**

Site **Jalkewadi**

Year	Mean discharge (Cusecs)						Volume (June to Oct.) T.M.C.
	June	July	Aug.	Sep.	Oct.	Nov.	
1949-50 . . .	680	15,276	12,614	7,446	1,120	238	98.8
50-51 . . .	138	23,325	7,684	5,984	1,657		103.4
1951-52 . . .	4,337	12,592	14,490	1,718	(527)		89.6
52-53 . . .	2,110	19,360	14,727	1,379	541	110	101.8
53-54 . . .	6,251	16,851	21,426	2,838	1,396	233	129.8
54-55 . . .	1,065	23,541	16,692	9,787	1,772		140.7
55-56 . . .	3,461	12,797	17,022	9,740	5,934		130.0
1956-57 . . .	3,690	26,440	21,703	4,387	2,985		157.9
57-58 . . .	3,033	19,727	16,635	3,528	955		117.0
58-59 . . .	2,148	27,654	13,433	6,810	1,299		136.9
59-60 . . .	2,551	44,923	14,760	11,385	2,138		201.6
60-61 . . .	5,143	20,419	15,713	3,776	1,686	231	124.4
12 Years' Mean	2,884	21,909	15,575	5,732	1,834		127.7

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 9

River **Koyna**

Site **Jalkewadi**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1949-50 . . .	141	91	12	6				
50-51 . . .								
1951-52 . . .	57	26	12	8				
52-53 . . .	38	14	4	1	7			
53-54 . . .	71	22	3	8	1	2	0.3	
54-55 . . .								
55-56 . . .								
1956-57 . . .								
57-58 . . .								
58-59 . . .								
59-60 . . .								
60-61 . . .	43							

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 10

River **Koyna**

Site **Holwak**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1906-07							
07-08							
08-09							
09-10							
10-11							
1911-12							
12-13							
13-14							
14-15							
15-16							
1916-17							
17-18							
18-19							
19-20							
20-21							
1921-22							
Ist. Jan. to 30th. Apr. 1922							
May '22 to Apr. '23							
May '23 to Apr. '24							
May '24 to Apr. '25							
May '25 to Apr. '26							
20 Years' Mean							

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 10

River **Koyna**

Site **Helwak**

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
1906-07								118.6
07-08								173.7
08-09								188.8
09-10								177.9
10-11								167.5
1911-12								108.2
12-13								176.6
13-14								152.3
14-15								236.5
15-16								134.5
1916-17								139.7
17-18								130.5
18-19								59.2
19-20								147.0
20-21								132.1
1921-22								134.4
1st. Jan. to 30th. Apr. 1922*								0.1
May '22 to Apr. '23								171.4
May '23 to Apr. '24								179.3
May '24 to Apr. '25								131.5
May '25 to Apr. '26								123.0
20 Years' Mean								149.1

*Not considered for calculating the average.

Note : The figures given for the years 1906-07 to 1914-20 are for seven months, June to December.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 11

River Yerla

Site Yeraiwadi

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1912-13 . . .							
13-14 . . .	235	110	77	50	74	4	1.4
14-15 . . .	5	138	226	275	97	17	2.0
15-16 . . .	22	41	54	609	127	47	2.3
1916-17 . . .	50	61	40	150	604	97	2.6
17-18 . . .							
18-19 . . .							
19-20 . . .	106	37	1	281	117	22	1.5
20-21 . . .	78	76	104	144	130	3	1.4
1921-22 . . .	15	351	202	131	236	126	2.6
22-23 . . .	194	416	227	134	183	2,192	8.7
23-24 . . .	119	314	41	522	162	41	3.1
24-25 . . .	15	86	832	895	331	65	5.8
25-26 . . .	26	Nil	20	137	85	13	0.8
1926-27 . . .	19	6	12	38	46	3	0.2
12 Years' Mean	74	136	153	280	183	219	2.7

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 11

River Yorla

Site Yeralwadi

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1912-13* . . .		8	6	4	4	18		
13-14 . . .	6	4	3	1	5	1	Nil	1.4
14-15 . . .	11	12	9	8	5	3	„	2.0
15-16 . . .	21	15	11	10	12	20	0.2	2.5
1916-17 . . .	29	Nil	Nil	Nil	Nil	Nil	0.1	2.7
17-18 . . .								
18-19* . . .		1	Nil	37	19			
19-20 . . .	4	28	2	Nil	37	Nil	0.2	1.7
20-21 . . .	1	Nil	Nil	„	Nil	„	Nil	1.4
1921-22 . . .	17	18	5	4	6	Nil	Nil	2.6
22-23 . . .	17	42	28	104	24	13	0.6	9.3
23-24 . . .	41	40	20	11	214	1	0.9	4.0
24-25 . . .	57	27	8	Nil	Nil	Nil	0.3	6.1
25-26 . . .	2	Nil	Nil	„	„	„	Nil	0.8
1926-27 . . .	Nil	Nil	Nil	Nil	Nil	Nil	Nil	0.2
12 Years' Mean	17	16	7	12	25	3	0.2	2.9

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 12

River Yerla

Site Ramapur

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1956-57 . . .			699	374	770		
57-58 . . .	63	174	159	163	72	249	2.3
58-59 . . .							
59-60 . . .				222	302	206	
60-61 . . .	33	134	78		323	245	

SERIAL No. 13

River Bhogawati (Panchganga)

Site Radhanagri H.E. Dam

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1953-54 . . .							
54-55 . . .	106	4,247	2,739	1,823	367	100	25.0
55-56 . . .	398	804	4,097	1,684	69	84	19.0
1956-57 . . .	715	4,404	3,242	927	398	153	26.3
57-58 . . .	702	1,375	3,405	509	237	284	17.2
58-59 . . .	294	396	311	395	293	275	5.2
59-60 . . .	301	2,378	1,840	509	250	196	14.6
60-61 . . .	1,023	1,155	2,222	626	315	298	15.0
7 Years' Mean	505	2,108	2,551	925	276	199	17.5

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 12

River Yorla

Site Ramapur

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1956-57 . . .	219	54	39	20	2	21	1.0	
57-58 . . .	78	34	23	10				
58-59 . . .								
59-60 . . .	58	31	23	13	11	32	0.5	
60.61 . . .	81	43	31	21	23			

SERIAL No. 13

River Bhogawati (Panchganga)

Site Radhanagri H.E. Dam

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1953-54* . . .		81	91	101	107	108		
54-55 . . .	106	122	136	147	179	176	2.3	27.3
55-56 . . .	116	116	146	175	184	208	2.6	21.6
1956-57 . . .	194	212	237	273	304	341	4.1	30.4
57-58 . . .	351	380	416	330	236	201	4.9	22.1
58-59 . . .	340	368	346	386	313	191	5.0	10.2
59.60 . . .	210	198	280	338	372	350	4.6	19.2
60.61 . . .	287	(233)	(260)	(275)	(265)	244	4.1	19.1
7 Years' Mean	229	233	260	275	265	244	3.9	21.4

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 14

River Ghataprabha

Site Hadalga

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1906-07* . . .							
07-08* . . .							
08-09* . . .							
09-10* . . .							
10-11* . . .	2,165	3,376	5,800	1,597	1,016	183	37.4
1911-12* . . .	2,704	3,513	4,531	1,719	399	117	34.4
12-13* . . .							
13-14* . . .							
14-15* . . .	1,466	13,303	8,442	2,660	314	111	70.0
15-16* . . .	5,077	4,593	3,568	1,627	811	169	41.9
1916-17* . . .	4,501	2,378	5,450	1,752	512	953	41.1
17-18* . . .	3,373	3,665	2,964	3,114	1,240	385	38.8
18-19* . . .							
19-20 . . .	1,068	4,147	4,197	1,084	725	126	30.1
20-21 . . .	1,477	6,486	2,401	670	221	75	30.1
1921-22 . . .	664	4,505	5,156	1,488	255	173	32.6
22-23 . . .	1,370	9,816	3,879	1,972	256	191	46.6
23-24 . . .	247	13,118	5,921	894	186	74	54.6
24-25 . . .	339	9,568	3,188	1,450	371	85	40.0
25-26 . . .	1,598	6,111	3,120	782	337	81	32.0
1926-27 . . .	88	5,261	7,371	1,491	291	79	38.9
8 Years' Mean	856	7,376	4,404	1,229	330	110	38.1

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 14

River Ghataprabha

Site Hadalga

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1906-07* . . .								30.0
07-08* . . .								50.3
08-09* . . .								50.5
09-10* . . .								38.9
10-11* . . .	81							
1911-12* . . .	71							
12-13* . . .								57.5
13-14* . . .								37.0
14-15* . . .	70							
15-16* . . .	78							
1916-17* . . .	123							
17-18* . . .	169							
18-19* . . .								
19-20 . . .	63	43	34	12	1	1	0.4	30.5
20-21 . . .	45	25	14	6	10	1	0.2	30.3
1921-22 . . .	71	45	23	16	16	14	0.4	33.0
22-23 . . .	87	63	41	29	18	4	0.6	47.2
23-24 . . .	50	31	13	4	12	2	0.2	54.8
24-25 . . .	60	33	24	11	4	3	0.4	40.4
25-26 . . .	46	23	13	9	2	(Nil)	0.2	32.2
1926-27 . . .	38	25	13	6	(Nil)	(Nil)	0.2	39.1
8 Years' Mean	58	36	22	12	8	3	0.3	38.4

*Not considered for calculating the averages.

Note: The annual volumes given for the years 1906-07 to 1909-10 and 1912-13 and 1913-14 are the volumes of flow for seven months, June to December.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 15

River Ghataprabha

Site Daddi

Year	Mean discharge (Cusecs)						Volume (June to Nov.) T.M.C.
	June	July	Aug.	Sep.	Oct.	Nov.	
1949-50 . . .	839	5,770	3,469	1,039	257	260	31.1
50-51 . . .							
1951-52* . . .		3,490	4,095	50		430	
52-53 . . .	875	7,203	6,171	304	514	388	41.3
53-54 . . .	3,166	7,921	12,536	1,050	1,006	139	68.8
54-55 . . .	364	7,913	8,239	1,136	74	232	47.9
55-56* . . .	1,984	3,892	2,036	1,962	1,759		
4 Years' Mean	1,311	7,202	7,604	882	463	255	47.3

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 15

River Ghataprabha

Site Daddi

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1949-50	144	47	18	7	3	Nil	0.5	31.6
50-51								
1951-52*								
52-53	93	48	24	5	21	2	0.5	41.8
53-54	233	106	33	25	7	13	1.1	69.9
54-55	178	93	43	Nil	Nil	Nil	0.8	48.7
4 Years' Mean	163	74	30	9	8	4	0.7	48.0

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 16

River **Ghataprabha**

Site **Dhupdal**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (Jan. to June) T.M.C.</i>
	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>June</i>	
1906	
07	
08	
09	
10	
1911	
12	
13	
14	
15	
1916	
17	
18	
19	
20	
1921	
1st Jan. to 30th Apr., 1922							
May '22 to Apr. '23.							
May '23 to Apr. '24.							
May '24 to Apr. '25.							
May '25 to Apr. '26.							
20 Years' Mean							

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 16

River Ghataprabha

Site Dhupdal

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>(July to Dec.) T.M.C.</i>	<i>Annual T.M.C.</i>
1906 . . .								80.6
07 . . .								153.9
08 . . .								155.9
09 . . .								107.8
10 . . .								109.3
1911 . . .								84.5
12 . . .								172.8
13 . . .								93.0
14 . . .								217.6
15 . . .								113.3
1916 . . .								134.2
17 . . .								119.0
18 . . .								60.9
19 . . .								99.3
20 . . .								92.5
1921 . . .								111.0
1st Jan. to 30th Apr '1922*								0.4
May '22 to Apr. '23 .								113.6
May '23 to Apr. '24 .								167.7
May '24 to Apr. '25 .								126.8
May '25 to Apr. '26 .								124.4
20 Years' Mean								121.9

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 16

River **Ghataprabha**

Site **Dhupda**

Year	Mean discharge (Cusecs)						Volume (June to Nov.) T.M.C.
	June	July	Aug.	Sep.	Oct.	Nov.	
1937-38							
38-39	7,571	18,352	6,946	4,246	8,651	341	122.5
39-40	5,406	25,669	24,334	7,529	989	328	171.0
40-41	2,667	22,016	17,656	2,663	935	230	123.2
1941-42	3,599	26,587	6,964	1,433	1,102	114	105.2
42-43	2,311	31,148	14,955	4,486	838	171	143.7
43-44	3,277	26,490	6,536	3,466	2,322	752	114.1
44-45	1,582	24,793	11,648	1,725	1,026	1,040	111.6
45-46	2,188	25,085	12,300	4,329	817	119	119.5
1946-47	4,513	22,611	28,451	4,110	1,705	697	165.6
47-48	274	15,429	11,816	10,546	1,210	374	105.1
48-49	3,313	17,678	16,486	6,117	2,840	926	126.0
49-50	2,617	16,093	12,930	5,282	2,408	670	106.3
50-51	712	33,269	13,196	8,330	5,882	468	164.8
1951-52	6,596	14,927	14,370	1,495	3,018	404	108.6
52-53	3,186	20,950	20,694	1,759	3,029	188	133.0
53-54	9,919	30,893	27,899	2,733	4,784	1,525	207.0
54-55	1,496	23,938	20,258	6,259	2,436	445	146.2
55-56	2,864	14,558	13,588	9,202	9,389	1,038	134.5
1956-57	4,975	31,690	24,037	2,986	4,130	1,819	185.7
57-58	2,568	22,332	22,349	2,979	2,329	1,216	143.5
58-59	5,793	44,394	11,980	5,400	1,204	314	184.0
59-60	3,189	43,293	15,317	9,716	1,275	811	196.0
60-61	3,056	19,861	18,154	3,633	1,603	553	124.8
23 Years' Mean	3,638	24,872	16,211	4,801	2,779	632	141.0

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 16

River **Ghataprabha**

Site **Dhupdal**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T. M.C.</i>	<i>Annual T. M.C.</i>
1937-38*		82	33	62	69	60		
38-39	128	82	81	63	45	28	1.1	123.6
39-40	128	88	77	56	27	62	1.1	172.1
40-41	131	99	91	62	61	47	1.4	124.6
1941-42	110	72	58	26	25	37	0.9	107.1
42-43	140	93	78	62	25	233	1.7	145.4
43-44	169	109	85	65	31	56	1.4	115.5
44-45	171	98	80	55	44	57	1.4	113.0
45-46	122	84	31	25	35	174	1.3	120.8
1946-47	217	113	88	51	62	67	1.6	167.2
47-48	163	120	62	47	56	45	1.2	106.3
48-49	332	160	144	62	62	935	4.5	130.5
49-50	219	145	76	31	30	43	1.5	107.8
50-51	207	153	74	52	40	110	1.7	166.5
1951-52	189	127	60	48	23	18	1.2	109.8
52-53	157	101	63	55	308	61	2.0	135.0
53-54	254	149	97	66	65	35	1.8	208.8
54-55	179	135	79	68	48	380	2.4	148.6
55-56	260	129	115	66	66	66	1.9	136.4
1956-57	388	158	52	3	1	148	1.9	187.6
57-58	253	103	31	67	77	248	2.2	145.7
58-59	109	19	72	1	21	103	1.0	185.0
59-60	153	57	22	Nil	1	373	1.7	197.7
60-61	142	42	Nil	„	2	1,765	5.2	130.0
23 Years' Mean	187	106	70	45	50	221	1.8	142.8

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 17

River **Ghataprabha**

Site **Chinohkandi**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1953-54			40,903				
54-55	1,622	30,421	28,864	7,339	3,271	274	191.6
55-56		22,147	12,845	13,637	17,623	1,986	
1956-57		36,221	33,167	3,835	7,013	8,617	
57-58			24,097	5,801	5,045	4,530	
58-59		52,762	9,500	6,366	1,377	234	
59-60							
60-61							

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 18

River Ghataprabha

Site Anagwadi

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1949-50 . . .	819	4,674	5,932	4,391	2,263	471	49.2
50-51* . . .	1,201	20,798	7,462	4,038	5,718		
1951-52* : . .							
52-53* . . .	1,481	13,203	12,768	1,446	3,637		
53-54* . . .		20,896	18,002	4,966	6,104	1,965	
54-55* . . .		19,534	14,412	5,074	3,824	137	
55-56 . . .	457	10,180	7,462	7,710	10,028	1,253	98.6
1956-57 . . .	1,308	22,230	10,551	2,724	4,799	3,447	120.1
57-58* . . .		16,678	1,5934			1,244	
58-59 . . .							
59-60 . . .							
60-61 . . .							
3 Years' Mean	861	12,361	7,982	4,942	5,697	1,724	89.3

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 19

River **Ghataprabha**

Site **Murmuttisangam**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Oct.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1949-50* . . .			13,204	4,725	1,118		
50-51 . . .	75	7,286	6,728	4,413	6,724		67.1
1951-52* . . .							
52-53 . . .	767	14,579	19,100	678	1,932		99.2
53-54 . . .	3,751	16,600	23,331	1,512	3,464	1,812	129.9
54-55 . . .	173	18,400	18,583	2,896	889		109.4
55-56* . . .			5,526	5,038	6,588	1,147	
1956-57 . . .	282	15,252	8,893	922	1,735	1,089	72.4
57-58* . . .		9,392	7,233			275	
58-59 . . .							
59-60 . . .							
60-61 . . .							
5 Years' Mean	1,010	14,423	15,327	2,084	2,949		95.6

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 20

River Hiranyakeshi (Ghataprabha)

Site Ajra

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov. T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1904-05*		5,705	3,525	1,529	267	72	
05-06	151	5,320	2,243	977	199	72	23.8
1906-07	796	6,275	2,818	1,484	353	111	31.4
07-08	757	5,162	8,529	1,142	486	103	43.2
08-09	653	7,720	4,741	986	245	170	38.8
09-10	1,296	8,712	1,906	1,065	521	118	36.3
10-11	2,014	3,993	5,960	1,915	1,211	204	40.6
1911-12	2,433	4,091	5,086	1,956	496	107	37.6
12-13	1,047	9,564	5,650	984	317	140	47.2
13-14	1,970	27,835	3,779	831	305	79	93.0
14-15	803	11,044	7,266	3,380	597	106	61.9
15-16	2,093	5,387	7,166	2,245	1,431	285	49.3
1916-17	4,448	3,298	6,529	2,713	1,032	1,448	51.4
17-18	2,259	3,304	2,394	2,357	928	337	30.6
18-19	1,124	1,817	4,055	677	156	88	21.1
19-20	1,225	4,220	4,688	1,040	559	194	31.8
20-21	1,157	6,701	2,778	781	206	75	31.3
1921-22	1,212	4,166	5,080	1,733	329	204	33.9
22-23	1,520	7,526	3,678	1,563	311	220	39.5
23-24	260	10,784	5,801	1,128	255	43	48.8
24-25	655	7,252	3,970	1,437	403	93	36.9
25-26	1,959	6,320	2,681	718	299	78	32.1
1926-27	74	4,946	6,825	1,487	366	75	36.8
22 Years' Mean	1,359	7,065	4,710	1,487	500	193	40.8

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 20

River Hiranyakeshi (Ghataprabha)

Site Ajra

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(June to Dec.) T.M.C.</i>	<i>Annual T.M.C.</i>
1904-05* . . .	36							
05-06 . . .	14							23.8
1906-07 . . .	49							31.5
07-08 . . .	32							43.3
08-09 . . .	90							39.0
09-10 . . .	49							36.4
10-11 . . .	67							40.8
1911-12 . . .	54							37.7
12-13 . . .	52							47.3
13-14 . . .	53							93.1
14-15 . . .	59							62.1
15-16 . . .	79							49.5
1916-17 . . .	273							52.1
17-18 . . .	143							31.0
18-19 . . .	42							21.2
19-20 . . .	119	64	31	6	Nil	Nil		32.1
20-21 . . .	36	22	10	1	„	„		31.2
1921-22 . . .	52	34	18	3	Nil	Nil		34.0
22-23 . . .	85							39.7
23-24 . . .	33							48.9
24-25 . . .	39							37.0
25-26 . . .	36							32.2
1926-27 . . .	35							36.9
22 Years' Mean	60							40.9

*Not considered for calculating the average

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 21

River **Markandeya (Ghataprabha)**

Site **Basapur**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.O.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1949-50	35	335	270	100	103	45	2.4
50-51*					247	58	
1951-52	64	416	493	80	162	55	3.3
52-53	39	841	724	87	191	40	5.1
53-54	483	1,446	1,042	151	420	130	9.8
54-55	67	37	339	152	125	53	2.0
55-56							
1956-57							
57-58							
58-59							
59-60							
60-61							
5 Years' Mean	138	615	574	114	200	65	4.5

*Not considered for calculating the average.

MALAPRABHA RIVER

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 22

River Malaprabha

Site Asoga

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1949-50	142	1,042	772	374	136	40	6.8
50-51*						110	
1951-52	338	987	1,064	104	257	12	7.3
52-53	129	1,490	1,135	96	205	33	8.1
53-54*		869	2,339	224			
54-55*			1,490	384	140	34	
55-56	(Nil)	613	842	571	1,176	92	8.7
1956-57*		2,251	1,399	244		93	
57-58	19	1,263	1,946	170	252	243	10.3
58-59	356	3,361	730	416	150	23	13.5
59-60	(Nil)	1,066	1,043	520	123	63	7.5
60-61	160	1,442	1,107	124	55	30	7.8
8 Years' Mean	143	1,408	1,080	297	294	67	8.8

SERIAL No. 23

River Malaprabha

Site Kolch

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>		
1951-52	1,676	1,596	2,805	906	2,051	553	25.3
52-53	384	2,398	4,288	816	817	157	23.6
53-54	1,110	4,329	6,902	716	3,527	867	46.5
54-55	396	5,235	5,154	1,923	795	261	36.6
55-56	506	1,577	1,744	3,090	5,422	754	34.7
1956-57	1,340	8,051	9,775	2,258	4,623	2,871	77.0
57-58	1,655	7,576	8,467	1,857	1,950	(804)	59.4
58-59	1,955	31,121	3,228	2,196	1,105	455	106.9
59-60	1,134	17,615	4,562	3,790	1,458	1,011	78.6
60-61	522	5,311	4,888	1,844	973	347	37.0
10 Years' Mean	1,066	8,481	5,181	1,940	2,272	808	52.6

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 22

River Malaprabha

Site Asoga

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May)</i>	<i>Annual</i>
							<i>T.M.C.</i>	<i>T.M.C.</i>
1949-50	13						Nil	6.8
50-51*								
1951-52	(Nil)						Nil	7.3
52-53	11						"	8.1
53-54*								
54-55*								
55-56	11						Nil	8.7
1956-57*	18						Nil	
57-58	18						"	10.3
58-59	11						"	13.5
59-60							"	7.5
60-61							"	7.8
8 Years' Mean	10						Nil	8.8

SERIAL No. 23

River Malaprabha

Site Kolehi

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May)</i>	<i>Annual</i>
							<i>T.M.C.</i>	<i>T.M.C.</i>
1951-52	31	12	15	12	12	8	0.1	25.4
52-53	148	121	103	101	180	109	2.0	25.6
53-54	161	170	205	268	254	395	3.9	50.4
54-55	197	122	105	121	64	612	3.2	39.8
55-56	204	172	119	73	128	91	2.2	36.9
1956-57	370	159	72	69	75	105	2.3	79.3
57-58	(223)	292	156	121	123	(392)	3.4	62.8
58-59	334	(151)	(106)	(102)	172	214	2.9	109.8
59-60	333	221	113	97	107	293	3.2	81.8
60-61	129	85	53	51	53	1,694	5.3	42.3
10 Years' Mean	219	151	105	102	117	391	2.8	55.4

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 24

River **Malaprabha**

Site **Hiresangam**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1952-53 . . .	2,593	14,887	16,227	4,197	5,211	(4,097)	125.6
53-54 . . .	4,313	14,958	21,869	13,182	20,368	4,149	209.5
54-55 . . .	2,650	21,353	23,673	19,315	10,599	4,297	217.1
55-56 . . .	2,463	10,491	10,189	18,985	23,820	10,072	200.9
1956-57 . . .	4,033	20,547	14,370	8,311	16,309	11,153	198.1
57-58* . . .			8,878	4,945	9,027	4,097	
58-59 . . .							
59-60 . . .							
60-61 . . .							
5 Years' Mean	3,210	16,447	17,266	12,798	15,261	6,754	190.2

*Not considered for calculating the average.

BHIMA RIVER

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 25

River **Bhima**

Site **Chaskaman**

<i>Year</i>	<i>Mean discharge (Cuseca)</i>	<i>Annual Volume</i>
	<i>June to May</i>	<i>T.M.C.</i>
1906-07		9.2
07-08		18.2
08-09		24.1
09-10		13.4
10-11		31.1
1911-12		21.3
12-13		37.5
13-14		50.4
14-15		31.0
15-16		16.7
1916-17		18.0
17-18		14.9
18-19		5.6
19-20		18.2
20-21		9.3
1921-22		12.9
1st Jan. to 30th. Apr.' 22*		Nil
May' 22 to Apr.' 23,		13.0
May' 23 to Apr.' 24		12.6
May' 24 to Apr.' 25		15.0
May' 25 to Apr.' 26		12.1
20 Years' Mean		19.2

*Not considered for calculating the average.

Note:—The figures given for the years 1906-07 to 1918-20 are for seven months, June to December.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 26

River hima

Site Dhond

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1949-50*					36	10		
50-51*			64	44	23	4		
1951-52*		80	42					
52-53*								
53-54*								
54-55*					12	Nil		
55-56	361	214	148	88	145	153	3.0	
1956-57*		343						
57-58*			93					
58-59	283	159	76	27	8	71	1.7	
59-60	(297)	179	70	50	30	8	1.7	
60-61	245	146	59	27	16	26	1.4	
4 Years' Mean	296	174	88	48	50	64	2.0	

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 27

<i>River Bhima</i>								<i>Site Yadgir</i>
<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>	
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>		
1957-58		51,309	86,410	50,043	45,155	23,824		
58-59	12,678	89,832	74,108	71,865	32,800	13,599	781.4	

SERIAL No. 28

<i>River Bhama (Bhima)</i>								<i>Site Wajl</i>
<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>	
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>		
1949-50	5	226	317	215	50	16	2.1	
50-51	1	1,462	207	177	126	15	5.3	
1951-52	139	457	1,428	148	326	51	6.8	
52-53								
53-54	427	792	1,809	244	214	24	9.3	
54-55	59	1,654	1,031	1,957	480	29	13.9	
55-56	22	625	1,457	1,392	679	64	11.3	
1956-57	70	2,500	3,811	1,090	1,086	740	24.7	
57-58	329	1,248	670	317	31	9	6.9	
58-59	173	3,516	1,341	1,165	172	54	17.0	
59-60*	69	2,261						
60-61								
9 Years' Mean	136	1,387	1,341	745	352	111	10.8	

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 27

River Bhima

Site Yadgir

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1957-58	13,778	12,210	12,210	12,210	8,239	8,145	175.0	
58-59	12,210	9,954	8,972	7,030				

SERIAL No. 28

River Bhama (Bhima)

Site Waki

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1949-50	4	1	1	1	1	1	Nil	2.1
50-51	6	3	1	1	Nil	14	„	5.3
1951-52	17	10	3	2	(Nil)	(Nil)	Nil	6.8
52-53*		5	2	1	Nil	Nil		
53-54	(7)	1	1	(Nil)	(Nil)	3	Nil	9.3
54-55	10	6	3	1	1	1	„	13.9
55-56	15	5	3	2	1	39	0.1	11.4
1956-57	61	15	6	4	(Nil)	(Nil)	0.2	24.9
57-58	5	3	1	Nil	Nil	10	Nil	6.9
58-59	33	5	1	„	„	5	0.1	17.1
59-60								
60-61								
9 Years' Mean	18	5	2	1	Nil	8	Nil	10.9

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 29

<i>River</i>	Kudil Nalla (Bhima)							<i>Site</i>	Wadivale
<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>		
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>			
1949-50	7	892	724	389	37	4	5.4		
50-51	1	5,094	426	744	200	6	17.1		
1951-52	51	922	1,433	37	10	5	6.5		
52-53	143	3,046	3,253	81	9	5	17.5		
53-54	727	704	2,192	107	13	3	10.0		
54-55	33	1,456	1,045	1,217	33	3	10.1		
55-56									
1956-57									
57-58	138	910	1,278	57	6	3	6.3		
58-59	40	(303)	743	557	15	(4)	4.3		
59-60	16	1,376	1,107	(1,100)	294	(4)	10.4		
60-61									
9 Years' Mean	128	1,634	1,356	477	69	4	9.7		

SERIAL No. 30

<i>River</i>	Vel (Bhima)							<i>Site</i>	Shikrapur
<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>		
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>			
1949-50	2	Nil	8	131	124	17	0.6		
50-51	3	142	91	514	214	18	2.5		
1951-52	49	41	37	15	98	58	0.8		
52-53	40	15	76	22	31	Nil	0.5		
53-54	53	3	23	14	12	Nil	0.2		
54-55	15	31	30	74	24	1	0.5		
55-56									
1956-57	4	146	598	178	1,045	402	6.3		
57-58	143	62	70	38	30	12	1.0		
58-59	5	498	98	99	39	79	2.2		
59-60	21	244	123	147	61	245	2.3		
60-61	8	53	45	172	176	80	1.3		
11 Years' Mean	31	112	109	128	169	83	1.7		

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 29

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
	River Kudil Nalla (Bhima)						Site Wadivale	
1949-50	2	2	1	1	1	1	Nil	5.4
50-51	2	2	2	2	2	2	„	17.1
1951-52	2	2	2	1	1	1	Nil	6.5
52-53	3	3	2	2	1	1	„	17.5
53-54	2	1	1	1	Nil	Nil	„	10.0
54-55	2	2	1	2	(1)	1	„	10.1
55-56								
1956-57*					1	1		
57-58	2	2	1	1	Nil	1	Nil	6.3
58-59	4	(2)	1	1	1	1	„	4.3
59-60	(2)	(2)	(1)	(1)	(1)	(1)	„	10.4
60-61								
9 Years' Mean	2	2	1	1	1	1	Nil	9.7

SERIAL No. 30

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
	River Vel (Bhima)						Site Shikrapur	
1949-50	4	1	Nil	Nil	Nil	Nil	Nil	0.6
50-51	6	3	„	„	„	6	„	2.5
1951-52	8	1	Nil	Nil	Nil	1	Nil	0.8
52-53	Nil	(3)	(1)	(Nil)	2	1	„	0.5
53-54	„	Nil	Nil	Nil	Nil	Nil	„	0.2
54-55	„	(3)	(1)	(Nil)	(1)	(13)	„	0.5
55-56*						136		
1956-57	59	13	6	3	1	7	0.2	6.5
57-58	2	1	1	Nil	2	6	Nil	1.0
58-59	13	1	1	„	4	50	0.1	2.3
59-60	9	2	1	„	Nil	46	0.1	2.4
60-61	17	8	3	1	„	13	Nil	1.3
11 Years' Mean	11	3	1	Nil	1	13	Nil	1.7

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 31

River **Mala-Mutha (Bhima)**

Site **Pimpalgaon Rahn**

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Jan. to Annual May) T.M.C.	Annual T.M.C.
1949-50*				16	13	20		
50-51*				16	10	3		
1951-52		75	62	23	(10)	(10)	0.5	
52-53		38	16	9	23	3	0.2	
53-54		30	28	34	12	(Nil)	0.3	
54-55		57	40	31	19	26	0.5	
55-56		70	62	43	26	15	0.6	
1956-57*					26	15		
57-58*		60	36	27				
58-59*				39	30	50		
59-60								
60-61								
5 Years' Mean		54	42	28	18	11	0.4	

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 32

River Mula (Bhima)

Site Mulshi Dam

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1930-31 . . .	1,778	6,724	3,147	2,121	188	Nil	37.0
1931-32 . . .	Nil	5,174	7,577	2,474	2,437	138	47.5
32-33 . . .	247	6,016	4,038	2,296	501	Nil	34.8
33-34 . . .	2,048	7,238	9,155	2,743	386	"	57.3
34-35 . . .	1,508	6,077	5,997	1,910	153	"	41.6
35-36 . . .	288	4,727	2,609	2,342	90	"	26.7
1936-37 . . .	2,343	4,170	3,384	2,289	70	Nil	32.5
37-38 . . .	1,940	7,855	2,717	1,997	142	"	38.9
38-39 . . .	3,062	5,325	3,273	1,216	2,250	"	40.2
39-40 . . .	298	4,934	5,269	2,102	37	"	33.6
40-41 . . .	1,746	5,920	6,117	1,552	343	"	41.7
1941-42 . . .	1,414	5,320	2,888	212	82	Nil	26.3
42-43 . . .	866	9,338	4,940	2,250	Nil	"	46.2
43-44 . . .	1,547	9,117	3,414	2,178	668	39	45.0
44-45 . . .	502	7,157	6,640	437	265	74	40.3
45-46 . . .	1,259	7,283	4,774	1,207	117	Nil	39.0
1946-47 . . .	1,438	7,376	6,930	1,377	185	318	47.0
47-48 . . .	24	4,461	3,839	3,202	249	Nil	31.3
48-49 . . .	441	3,342	3,989	990	175	549	25.3
49-50 . . .	164	4,251	3,439	1,861	248	Nil	26.5
50-51 . . .	23	7,407	2,105	1,839	203	"	30.8
1951-52 . . .	842	3,628	4,064	315	229	4	24.2
52-53 . . .	916	5,954	3,932	332	116	Nil	30.0
53-54 . . .	2,261	4,190	5,413	704	137	"	33.8
54-55 . . .	686	6,394	4,086	3,678	316	"	40.1
55-56 . . .	1,070	3,369	5,298	2,762	659	55	35.1
1956-57 . . .	960	8,391	5,740	1,350	545	111	45.7
57-58 . . .	1,227	5,050	4,813	648	119	91	31.8
58-59 . . .	908	8,463	3,223	2,088	118	Nil	39.4
59-60 . . .	545	8,702	3,544	3,253	465	"	43.8
60-61 . . .	1,857	5,696	4,069	726	96	"	33.2
31 Years' Mean	1,103	6,098	4,530	1,756	374	44	37.0

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 32

River **Mula (Bhima)**

Site **Mulshi Dam**

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
1930-31	Nil	Nil	Nil	Nil	Nil	Nil	Nil	37.0
1931-32	Nil	Nil	Nil	Nil	Nil	Nil	Nil	47.5
32-33	"	"	"	"	"	"	"	34.8
33-34	"	"	"	"	"	"	"	57.3
34-35	"	"	"	"	"	"	"	41.6
35-36	"	"	"	"	"	"	"	26.7
1936-37	Nil	Nil	Nil	Nil	Nil	Nil	Nil	32.5
37-38	"	"	"	"	"	"	"	38.9
38-39	"	"	"	"	"	"	"	40.2
39-40	"	"	"	"	"	"	"	33.6
40-41	"	"	"	"	"	"	"	41.7
1941-42	Nil	Nil	"	Nil	Nil	Nil	Nil	26.3
42-43	"	"	"	"	"	"	"	46.2
43-44	"	"	"	"	"	"	"	45.0
44-45	"	"	"	"	"	"	"	40.3
45-46	"	"	"	"	"	"	"	39.0
1946-47	Nil	Nil	Nil	Nil	Nil	Nil	Nil	47.0
47-48	"	"	"	"	"	"	"	31.3
48-49	"	"	"	"	"	"	"	25.3
49-50	"	"	"	"	"	"	"	26.5
50-51	"	"	"	"	"	"	"	30.8
1951-52	Nil	Nil	Nil	Nil	Nil	Nil	Nil	24.2
52-53	"	"	"	"	"	"	"	30.0
53-54	"	"	"	"	"	"	"	33.8
54-55	"	"	"	"	"	"	"	40.1
55-56	"	"	"	"	"	50	0.1	35.2
1956-57	Nil	Nil	Nil	Nil	Nil	12	Nil	45.7
57-58	39	"	"	"	"	42	0.2	32.0
58-59	Nil	"	"	"	"	Nil	Nil	39.4
59-60	"	"	"	"	"	"	"	43.8
60-61	"	"	"	"	"	44	0.1	33.3
31 Years' Mean	1	Nil	Nil	Nil	Nil	5	Nil	37.0

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 33

River **Mutha (Bhima)**

Site **Khadakwasla**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1945-46							
1946-47 . . .	620	13,848	10,044	1,054	141	Nil	68.7
47-48 . . .	(Nil)	4,929	5,567	4,025	351	„	39.4
48-49 . . .	„	2,622	5,307	490	237	801	25.2
49-50 . . .	„	3,125	4,296	1,096	119	Nil	23.0
50-51 . . .	„	11,328	1,905	1,031	163	„	38.5
1951-52 . . .	717	5,210	7,597	279	387	31	38.0
52-53 . . .	763	10,814	5,870	334	59	Nil	47.8
53-54 . . .	2,507	6,767	9,260	636	137	„	51.4
54-55 . . .	344	9,754	6,553	3,875	418	„	55.7
55-56 . . .	1,004	5,064	7,110	3,454	1,093	„	47.1
1956-57 . . .	(Nil)	13,759	7,348	831	860	184	61.6
57-58 . . .	1,457	7,004	5,249	295	(Nil)	Nil	37.5
58-59 . . .	636	17,347	8,178	1,899	82	„	75.1
59-60 . . .	53	16,020	5,773	4,891	196	„	71.7
60-61 . . .	1,805	9,139	6,588	1,073	130	„	49.9
15 Years' Mean	660	9,117	6,443	1,684	292	68	48.7

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 33

River Mutha (Bhima)

Site Khadakwasla

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1945-46*		4	10	7	6	8		
1946-47	79	53	10	5	14	4	0.3	69.0
47-48	14	36	10	9	9	9	0.1	39.5
48-49	46	30	19	10	6	12	0.2	25.4
49-50	20	21	17	10	5	22	0.3	23.3
50-51	41	30	25	18	13	16	0.3	38.8
1951-52	21	6	13	7	10	8	0.1	38.1
52-53	30	15	12	9	13	8	0.1	47.9
53-54	29	22	15	10	11	7	0.2	51.6
54-55	19	24	8	15	27	19	0.4	56.1
55-56	31	19	12	12	22	13	0.3	47.4
1956-57	20	14	3	16	20	24	0.3	61.9
57-58	21	10	1	4	18	2	0.1	37.6
58-59	9	1	6	3	1	3	Nil	75.1
59-60	21	8	1	(Nil)	(Nil)	Nil	0.1	71.8
60-61	9	7	Nil	„	„	(Nil)	Nil	49.9
15 Years' Mean	27	20	10	9	11	10	0.2	48.9

*No. considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 34

River Ghod (Bhima)

Site Nirgudsar

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1906-07 . . .	264	2,981	1,990	1,785	103	18	18.9
07-08 . . .	96	5,078	7,591	656	73	20	36.1
08-09 . . .	(338)	4,886	8,039	2,690	689	38	44.4
09-10 . . .	640	6,925	3,896	2,238	1,667	66	41.0
10-11 . . .	351	3,153	8,379	3,829	3,837	227	52.5
1911-12 . . .	241	850	4,335	1,126	151	88	18.0
12-13 . . .	1,685	6,291	7,538	3,415	1,924	1,168	58.5
13-14 . . .	3,716	6,751	6,110	3,928	1,451	420	59.3
14-15 . . .	1,346	8,434	4,815	2,578	319	62	46.8
15-16 . . .	1,340	2,926	3,401	1,637	693	114	26.8
1916-17 . . .	234	907	5,061	3,236	3,907	706	37.3
17-18 . . .	324	1,673	2,504	1,210	813	50	17.4
18-19 . . .	19	229	1,927	260	27	14	6.6
19-20 . . .	233	3,220	3,721	1,209	355	72	23.5
20-21 . . .	154	3,614	1,916	410	37	12	16.4
1921-22 . . .	25	4,195	2,564	1,623	139	14	22.8
22-23 . . .	267	3,174	2,178	1,134	54	238	18.6
23-24 . . .	Nil	2,144	3,409	1,307	77	15	18.4
24-25 . . .	17	1,998	7,580	2,283	269	47	32.4
25-26 . . .	349	3,314	1,574	224	50	19	14.8
• 1926-27 . . .	13	1,917	4,662	1,702	181	27	22.6
21 Years' Mean	555	3,555	4,438	1,832	801	164	30.1

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 34

River Ghod (Bhima)

Site Nirgudsar

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec.) T.M.C.</i>	<i>(June to Dec.) T.M.C.</i>
1906-07	4						Nil	18.9
07-08	14						„	36.1
08-09	15						„	44.4
09-10	16						„	41.0
10-11	40						0.1	52.6
1911-12	46						0.1	18.1
12-13	14						Nil	58.5
13-14	34						0.1	59.4
14-15	26						0.1	46.9
15-16	33						0.1	26.9
1916-17	60						0.2	37.5
17-18	19						0.1	17.5
18-19	11						Nil	6.6
19-20	21						0.1	23.6
20-21	2						Nil	16.4
1921-22	5						Nil	22.8
22-23	8						„	18.6
23-24	6						„	18.4
24-25	16						„	32.4
25-26	8						„	14.8
1926-27	7						Nil	22.6
21 Years' Mean	19						Nil	30.2

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 35

River **Mina (Ghod)**

Site **Wadgaon**

Year	Mean discharge (Cusecs)						Volume (June to Nov.)
	June	July	Aug.	Sep.	Oct.	Nov.	T.M.C.
1904-05	222	617	339	614	81	3	5.0
05-06	(Nil)	968	454	192	41	4	4.4
1906-07	139	672	585	496	48	2	5.2
07-08	1	2,287	1,750	58	14	8	11.0
08-09	(Nil)	366	798	109	22	13	3.5
09-10	38	1,103	424	50	30	8	4.4
10-11	40	203	937	193	686	34	5.5
1911-12	15	127	1,386	305	18	93	5.0
12-13	15	3,054	1,092	102	241	47	12.1
13-14							
1916-17							
17-18	119	379	917	518	225	37	5.8
18-19	17	28	504	51	4	2	1.5
19-20	40	546	979	333	76	27	5.4
20-21	69	585	309	165	38	3	3.1
1921-22	Nil	977	700	769	60	10	6.7
22-23	11	1,020	426	275	41	(Nil)	4.6
23-24	(Nil)	838	1,186	747	175	9	7.8
24-25	10	299	1,687	712	162	20	7.6
17 Years' Mean	43	828	851	335	115	19	5.8
1946-47							
47-48	13	639	280	614	278	20	4.8
48-49	33	171	222	91	51	79	1.7
49-50	4	114	176	425	108	23	2.3
50-51	2	1,032	186	302	59	11	4.3
1951-52*							
52-53	22	357	644		87	13	
53-54	22	942	1,012	50	26	10	5.5
54-55	103	172	913	120	53	10	3.6
55-56	10	661	342	889	45	15	5.1
56-57	10	105	908	652	221	19	5.0
1956-57*							
57-58	177	909	1,203	507	95	26	7.8
58-59	14	1,996	956	822	44	12	10.1
59-60	21	1,331	1,011	620	127	118	8.6
60-61	7	405	563	155	62	19	3.2
12 Years' Mean	35	706	648	437	97	30	5.2
29 Years' Mean	40	777	767	377	108	24	5.5

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 35

River **Mina (Ghod)**

Site **Wadgaon**

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec.)	(June to Dec.)
							T.M.C.	T.M.C.
1904-05	2						Nil	5.0
05-06	3						"	4.4
1906-07	2						Nil	5.2
07-08	5						"	11.0
08-09	10						"	3.5
09-10	4						"	4.4
10-11	10						"	5.5
1911-12	19						0.1	5.1
12-13	14						Nil	12.1
13-14								
1916-17								
17-18	12						Nil	5.8
18-19	Nil						"	1.5
19-20	14						"	5.4
20-21	3						"	3.1
1921-22	4						Nil	6.7
22-23	10						"	4.6
23-24	(Nil)						(Nil)	7.8
24-25	14						"	7.6
17 Years' Mean	7						Nil	5.8
1946-47								
47-48	13	13	12	7	3	2	Nil	4.8
48-49	43	12	11	6	5	2	0.1	1.8
49-50	13	8	5	2	2	3	Nil	2.3
50-51	8	(8)	(6)	2	2	4	"	4.3
1951-52*	17		5	4	4	1		
52-53	6	5	4	3	2	1	Nil	5.5
53-54	6	5	3	3	Nil	Nil	"	3.6
54-55	9	7	3	3	3	1	"	5.1
55-56	8	6	4	2	2	3	"	5.0
1956-57*	26							
57-58	11	6	(Nil)	4	6	19	0.1	7.9
58-59	8	5	4	2	2	1	Nil	10.1
59-60	21	12	8	5	4	7	0.1	8.7
60-61	13	6	3	2	1	7	Nil	3.2
12 Years' Mean	13	8	5	3	3	4	Nil	5.2
29 Years' Mean	10							

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 36

River Kukdi (Ghod)

Site Edgaon

Year	Mean discharge (Cusecs)						Volume (Jan. to June) T.M.C.
	Jan.	Feb.	Mar.	Apr.	May	June	
1906							
07							
08							
09							
10							
1911							
12							
13							
14							
15							
1916							
17							
18							
19							
20							
1921							
Ist Jan. to 30th Apr., 1922							
May '22 to Apr. '23							
May '23 to Apr. '24							
May '24 to Apr. '25							
May '25 to Apr. '26							
20 Years' Mean							

EAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 36

River Kukdi (Ghod)

Site Edgaon

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>(July to Dec.)</i>	<i>Annual</i>
							<i>T.M.C.</i>	<i>T.M.C.</i>
1906								11.2
07								29.0
08								24.7
09								24.3
10								26.5
1911								19.2
12								22.3
13								48.5†
14								41.9
15								26.6
1916								40.8
17								30.2
18								11.8
19								31.2
20								13.7
1921								20.1
Ist Jan. to 30th Apr., 1922*								Nil
May '22 to Apr. '23								23.5
May '23 to Apr. '24								22.6
May '24 to Apr. '25								30.5
May '25 to Apr. '26								18.3
20 Years' Mean								25.8

*Not considered for calculating the average.

†Doubtful

Note :—The figures given for the years 1906 to 1919 are for seven months, June to December.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 37

River Hanga (Ghod)

Site Visapur

Year	Mean discharge (Cusecs)						Volume (June to Nov.) T.M. C.
	June	July	Aug.	Sep.	Oct.	Nov.	
1948-49							
49-50							
50-51	33	9	12	659	11	Nil	1.8
1951-52	102	101	6	86	133	Nil	1.2
52-53	68	19	6	39	13	„	0.4
53-54*							
54-55	24	33	21	42	19	„	0.5
55-56	13	10	10	272	Nil	„	0.7
1956-57	25	35	163	205	203	Nil	1.6
57-58	28	6	65	17	52	38	0.5
58-59	23	70	718	248	44	Nil	2.9
59-60	4	9	12	19	50	77	0.3
60-61	63	15	5	305	104	17	1.3
10 Years' Mean	38	31	102	189	63	13	1.1

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 37

River Hanga (Ghod)

Site Visapur

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1948-49*		19	19	13	7	8		
49-50*	52	7	18	15	11	12	0.1	
50-51	29	15	19	12	8	15	0.1	1.9
1951-52	19	12	32	19	13	9	0.3	1.5
52-53	20	5	(Nil)	(Nil)	(Nil)	(Nil)	0.1	0.5
53-54*	16	19	11	17	14	36	0.2	
54-55	13	13	5	24	7	23	0.2	0.7
55-56	16	9	8	11	7	32	0.1	0.8
1956-57	24	19	16	10	1	7	0.2	1.8
57-58	10	6	3	5	4	2	Nil	0.5
58-59	7	9	7	8	2	3	„	2.9
59-60	15	12	6	6	3	28	0.1	0.4
60-61	17	10	57	6	7	31	0.2	1.5
10 Years' Mean	17	11	15	10	5	15	0.1	1.2

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 38

River Nira (Bhima)

Site Natambi

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1906-07 . . .							
07-08 . . .							
08-09 . . .							
09-10 . . .							
10-11 . . .							
1911-12 . . .							
12-13 . . .							
13-14 . . .							
14-15 . . .							
15-16 . . .							
1916-17 . . .							
17-18 . . .							
18-19 . . .							
19-20 . . .							
20-21 . . .							
1921-22 . . .							
1st Jan. to 30th. Apr. 1922							
May' 22 to Apr.' 23							
May' 23 to Apr.' 24							
May' 24 to Apr.' 25							
May' 25 to Apr.' 26							
20 Years' Mean							

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 38

River **Nira (Bhima)**

Site **Natambi**

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
1906-07								12.3
07-08								20.5
08-09								20.4
09-10								18.8
10-12								26.0
1911-12								10.0
12-13								15.6
13-14								29.3
14-15								25.8
15-16								14.4
1916-17								23.4
17-18								24.2
18-19								8.5
19-20								31.9†
20-21								21.9
1921-22								21.3
1st Jan. to 30th. Apr. 1922*								Nil
May '22 to Apr. '23								21.9†
May '23 to Apr. '24								22.4
May '24 to Apr. '25								18.2
May '25 to Apr. '26								15.2
20 Years' Mean								20.1

*Not considered for calculating the average.

†Doubtful

Note: The figures given for the years 1906-07 to 1919-20 are for seven months, June to December.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLCW

SERIAL No. 39

Year	Mean discharge (Cusecs)						Volume (June to Nov.) T.M.C.
	June	July	Aug.	Sep.	Oct.	Nov.	
	<i>Uiser Nira (Bhima)</i>						
1942-43*		15,042	11,172	4,235	1,397	1,289	
43-44	1,079	16,542	6,881	3,172	3,100	1,373	85.6
44-45	2,279	13,790	11,899	1,528	1,187	1,222	85.1
45-46	1,169	9,621	10,978	2,251	1,508	1,690	72.4
1946-47	878	12,061	19,561	3,649	1,820	1,010	104.0
47-48	953	7,032	7,951	9,657	3,394	1,465	80.5
48-49	789	3,764	7,746	4,041	3,036	702	53.2
49-50	1,030	4,772	8,802	3,788	969	1,436	55.2
50-51	616	7,173	3,643	3,949	1,864	1,712	50.2
1951-52	1,028	3,429	5,292	1,193	1,342	1,403	36.4
52-53	494	8,407	9,687	1,552	1,028	1,638	60.7
53-54	3,091	6,119	16,630	2,853	1,328	1,468	83.7
54-55	583	14,672	16,394	7,183	1,037	1,554	110.1
55-56	1,196	4,652	5,893	7,858	4,041	1,266	65.9
1956-57	1,365	15,959	10,672	3,169	7,364	2,933	110.3
57-58	(1,356)	5,512	7,458	2,129	2,290	810	52.0
58-59	961	13,488	6,141	4,952	1,068	1,573	74.8
59-60	1,249	18,986	11,250	12,037	1,768	1,213	123.2
60-61	2,236	12,183	14,751	9,260	2,206	347	110.0
18 Years' Mean	1,242	9,898	10,090	4,679	2,242	1,406	78.5

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 39

River Nira (Bhima)

Site Vir

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
1942-43* . . .								
43-44 . . .	1,450	1,104	898	717	742	829	15.2	100.8
44-45 . . .	1,506	1,130	843	793	823	789	15.3	100.4
45-46 . . .	1,468	1,264	504	640	554	594	13.2	85.6
1946-47 . . .	1,233	1,024	862	773	781	961	14.8	118.8
47-48 . . .	1,348	1,147	816	565	810	757	14.3	94.8
48-49 . . .	1,156	1,313	856	599	859	921	15.0	68.2
49-50 . . .	1,497	1,184	822	773	807	496	14.7	69.9
50-51 . . .	1,261	1,147	652	970	816	968	15.4	65.6
1951-52 . . .	1,225	745	636	551	637	566	11.6	48.0
52-53 . . .	1,914	722	550	664	659	652	13.5	74.2
53-54 . . .	1,708	1,101	677	662	756	737	14.9	98.6
54-55 . . .	1,270	871	912	715	778	738	13.8	123.9
55-56 . . .	1,491	1,059	656	655	938	826	14.8	80.7
1956-57 . . .	1,394	1,045	786	689	1,056	1,294	16.4	126.7
57-58 . . .	1,723	904	931	696	872	1,024	16.2	68.2
58-59 . . .	1,161	703	804	687	763	577	12.2	87.0
59-60 . . .	1,521	943	972	594	1,086	1,031	16.2	139.4
60-61 . . .	1,489	993	794	893	903	765	15.3	125.3
18 Years' Mean	1,434	1,022	776	702	813	807	14.6	93.1

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 40

River Nira (Bhima)

Site Sarati

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Jan. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1948-49*					114	129		
49-50*				89	72	72		
50-51*			68	58	58	112		
1951-52								
52-53								
53-54								
54-55		143	131	103	108	87		1.5
55-56								
1956-57*						140		
57-58		207	93	82	86	106		1.5
58-59*				42	52	95		
59-60		237	152	89	94	149		1.8
60-61								
3 Years' Mean		196	125	91	96	114		1.6

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 41

River Nira (Bhima)

Site Narasingpur

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Jan. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1948-49								
49-50*				139	122			
50-51*			141	105	85	86		
1951-52		154	99	74	42	24	1.0	
52-53		87	61	22	77	36	0.7	
53-54*		193	144	114				
54-55		227	249	199	183	191	2.7	
55-56								
1956-57*						88		
57-58*		39						
58-59*			148	105	107	126		
59-60								
60-61								
3 Years' Mean		156	136	98	101	84	1.5	

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 42

River **Yelwandi (Nira)**

Site **Bhatghar**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1941-42 . . .	575	6,387	2,708	414	Nil	Nil	27.0
42-43 . . .	286	8,802	4,388	1,612	„	„	40.3
43-44 . . .	910	8,191	2,147	735	324	„	32.9
44-45 . . .	416	8,939	13,735	386	Nil	„	62.8
45-46 . . .	652	6,171	4,484	762	„	„	32.2
1946-47 . . .	830	8,015	7,611	656	Nil	Nil	45.8
47-48 . . .	31	4,262	3,340	2,706	311	„	28.2
48-49 . . .	Nil	2,810	4,091	620	86	„	20.3
49-50 . . .	„	3,606	4,280	1,057	Nil	„	23.9
50-51 . . .	„	6,739	2,602	791	207	„	27.7
1951-52 . . .	954	2,864	3,768	372	330	Nil	22.2
52-53 . . .	571	2,724	4,356	114	Nil	„	20.8
53-54 . . .	1,364	4,223	6,016	246	„	„	31.5
54-55 . . .	204	6,157	4,273	2,626	70	„	35.4
55-56 . . .	Nil	3,668	4,034	2,790	749	„	29.8
1956-57 . . .	Nil	7,358	5,536	780	882	144	39.3
57-58 . . .	„	3,396	4,175	389	Nil	Nil	21.3
58-59 . . .	455	8,310	2,835	1,386	„	„	34.7
59-60 . . .	Nil	9,207	3,364	3,156	„	„	41.9
60-61 . . .	„	7,892	4,642	1,005	„	„	36.1
20 Years' Mean	362	5,986	4,619	1,130	148	7	32.7

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 42

River **Yelwandi (Nira)**

Site **Bhatghar**

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
1941-42	222	229	Nil	413	184	180	3.3	30.3
42-43	261	138	165	38	57	94	2.0	42.3
43-44	73	77	62	56	61	122	1.2	34.1
44-45	69	80	72	137	34	161	1.5	64.3
45-46	95	99	50	76	42	49	1.1	33.3
1946-47	57	57	57	57	61	42	1.0	46.8
47-48	76	65	51	42	65	57	1.0	29.2
48-49	49	61	57	88	53	16	0.7	21.0
49-50	80	57	78	76	49	61	1.1	25.0
50-51	46	73	46	38	57	78	0.8	28.5
1951-52	106	57	70	34	57	65	1.1	23.3
52-53	65	57	33	38	33	42	0.8	21.6
53-54	58	57	46	46	57	69	1.1	32.6
54-55	146	149	157	107	69	65	1.9	37.3
55-56	84	134	69	115	69	100	1.6	31.4
1956-57	73	49	107	88	168	120	1.5	40.8
57-58	77	77	149	99	76	119	1.6	22.9
58-59	(86)	(78)	(87)	(73)	(67)	(86)	1.2	35.9
59-60	96	49	65	42	38	135	1.2	43.1
60-61	72	69	86	90	32	57	1.1	37.2
20 Years' Mean	95	86	75	88	66	86	1.3	34.0

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 43

River Gunjawani (Nira)

Site Mohri

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1906-07							
07-08							
08-09							
09-10							
10-11							
1911-12							
12-13							
13-14							
14-15							
15-16							
1916-17							
17-18							
18-19							
19-20							
20-21							
1921-22							
1st. Jan. to 30th Apr. 1922							
May' 22 to Apr.' 23							
May' 23 to Apr.' 24							
May' 24 to Apr.' 25							
May' 25 to Apr.' 26							
30 Years' Mean							

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 43

River Gunjawani (Nira)

Site Mohri

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1906-07 . . .								13.3
07-08 . . .								28.2
08-09 . . .								25.0
09-10 . . .								21.9
10-11 . . .								27.1
1911-12 . . .								7.7
12-13 . . .								21.4
13-14 . . .								24.5
14-15 . . .								31.3
15-16 . . .								21.5
1916-17 . . .								12.7
17-18 . . .								24.7
18-19 . . .								7.4
19-20 . . .								23.9
20-21 . . .								23.9
1921-22 . . .								20.4
1st Jan. to 30th Apr. 1922*								0.1
May' 22 to Apr.' 23								28.9
May' 23 to Apr.' 24								21.0
May' 24 to Apr.' 25								20.4
May' 25 to Apr.' 26								18.3
20 Years' Mean								21.2

*Not considered for calculating the average.

Note : The figures given for the years 1906-07 to 1919-20 are for seven months, June to December.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 44

River Sina (Bhima)

Site **Hatwalan**

Year	Mean discharge (Cusecs)						Volume (June to Nov.)
	June	July	Aug.	Sep.	Oct.	Nov.	T.M.C.
1902-03	57	129	35	112	3	26	0.9
03-04	231	254	9	157	600	20	3.4
04-05*	65			249	136	8	
05-06*	133	7	5		25	Nil	
1906-07	137	10	578	53	7	1	2.0
07-08	221	341	14	23	4	Nil	1.6
08-09*							
09-10	89	1	224	825	133	8	3.3
10-11	628	409	143	2,059	420	157	9.9
1911-12	293	737	58	28	3	48	3.2
12-13	120	2	29	(Nil)	57	41	0.7
13-14	760	807	4	81	58	Nil	4.6
14-15	738	3	435	1,021	46	13	5.8
15-16	256	409	10	265	290	33	3.4
11 Years' Mean	321	282	140	420	147	32	3.5
1946-47							
47-48							
48-49	4	9	53	469	110	289	2.3
49-50	250	11	50	1,308	451	137	5.7
50-51	128	71	21	1,103	201	11	4.0
1951-52	75	363	10	116	266	13	2.2
52-53	594	21	Nil	90	102	2	2.1
53-54*				209	249		
54-55	134	184	21	392	112	54	2.3
55-56	87	31	74	501	852	235	4.7
1956-57	96	83	324	698	1,340	300	7.5
57-58	516	49	983	484	583	69	7.1
58-59*							
59-60	336	6	109	402	1,246	243	6.1
60-61							
10 Years' Mean	222	83	164	556	526	135	4.4
21 Years' Mean	274	187	152	485	328	81	3.9

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 44

River Sina (Bhima)

Site Hatwalan

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
1902-03	12	Nil	Nil	Nil	Nil	Nil	Nil	0.9
03-04	13	6	5	"	"	"	"	3.4
04-05*	Nil	Nil	Nil	"	"	"	"	
05-06*	"	"	"	"	"	"	"	
1906-07	31	Nil	Nil	Nil	Nil	Nil	0.1	2.1
07-08	Nil	(Nil)	(Nil)	(Nil)	(Nil)	(Nil)	Nil	1.6
08-09*		Nil	Nil	Nil	Nil	Nil		
09-10	Nil	"	"	"	"	"	Nil	3.3
10-11	47	71	23	16	7	2	0.4	10.3
1911-12	12	(Nil)	(Nil)	(Nil)	(Nil)	(Nil)	Nil	3.2
12-13	Nil	"	"	"	"	"	"	0.7
13-14	9	"	"	"	"	"	"	4.6
14-15	3	"	"	"	"	"	"	5.8
15-16	163	"	"	"	"	"	0.4	3.8
11 Years' Mean	26	7	3	1	1	Nil	0.1	3.6
1946-47								
47-48								
48-49	53	33	18	9	3	(Nil)	0.2	2.5
49-50	12	(5)	5	3	3	2	Nil	5.7
50-51	5	3	(Nil)	(Nil)	(Nil)	(Nil)	"	4.0
1951-52	3	1	Nil	(Nil)	(Nil)	(Nil)	Nil	2.2
52-53	Nil	(Nil)	(Nil)	"	"	"	"	2.1
53-54*								
54-55	(18)	9	8	7	5	1	Nil	2.3
55-56	41	22	11	5	4	315	1.0	5.7
1956-57	79	29	19	10	27	6	0.4	7.9
57-58	23	11	(10)	6	(Nil)	(Nil)	0.1	7.2
58-59*		11	8	4	2	2		
59-60	20	13	9	6	2	7	0.1	6.2
60-61								
10 Years' Mean	25	13	8	5	4	33	0.2	4.6
21 Years' Mean	26	10	5	3	2	16	0.1	4.0

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 45

River Sina (Bhima)

Site Wadakbal

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Jan. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1949-50* . . .					25	8		
50-51* . . .								
1951-52* . . .				2	2	2		
52-53 . . .		5	5	5	5	4	Nil	
53-54 . . .		9	7	6	6	(4)	„	
54-55* . . .								
55-56* . . .								
1956-57* . . .						107		
57-58* . . .		99	98	96				
58-59 . . .		139	126	126	123	79	1.5	
59-60 . . .		125	114	96	90	68	1.3	
60-61 . . .		(70)	60	52	44	48	0.6	
5 Years' Mean		70	62	57	54	41	0.7	

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 46

River **Ekruk Naila (Sina)**

Site **Ekruk Tank**

Year	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1944-45 . . .	13	93	1	54	77	4	0.5
45-46 . . .	17	56	96	56	1	Nil	0.5
1946-47 . . .	48	4	44	50	11	7	0.3
47-48 . . .	70	29	341	153	39	13	1.7
48-49 . . .	Nil	13	460	473	899	474	6.0
49-50 . . .	262	195	169	3,533	514	19	12.3
50-51 . . .	48	5	13	438	439	7	2.4
1951-52 . . .	180	314	311	250	380	Nil	3.7
52-53 . . .	129	147	3	160	15	Nil	1.1
53-54 . . .	146	1,933	460	1,117	1,738	95	14.6
54-55 . . .	193	1,487	549	874	502	40	9.7
55-56 . . .	48	272	1,196	196	122	7	4.8
1956-57 . . .	23	1,054	295	735	724	61	7.7
57-58 . . .	84	73	283	387	187	19	2.7
58-59 . . .	Nil	16	1,107	508	73	19	4.5
59-60 . . .	82	10	194	421	432	80	3.2
60-61 . . .	36	16	Nil	441	13	Nil	1.2
17 Years' Mean	81	336	325	579	363	50	4.5

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 46

River **Ekruk Nalla (Sina)**

Site **Ekruk Tank**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1943-44*						Nil		
44-45	Nil	Nil	Nil	Nil	Nil	„	Nil	0.5
45-46	„	„	„	„	„	16	„	0.5
1946-47	Nil	Nil	Nil	Nil	Nil	2	Nil	0.3
47-48	„	„	„	„	„	Nil	„	1.7
48-49	130	„	„	„	„	5	0.3	6.3
49-50	Nil	„	„	„	„	Nil	Nil	12.3
50-51	„	„	„	„	„	„	„	2.4
1951-52	Nil	Nil	Nil	Nil	Nil	101	0.3	4.0
52-53	„	„	„	„	„	Nil	Nil	1.1
53-54	„	„	„	„	„	„	„	14.6
54-55	„	„	„	„	„	36	0.1	9.8
55-56	„	„	„	„	„	38	0.1	4.9
1956-57	Nil	Nil	Nil	Nil	Nil	Nil	Nil	7.7
57-58	„	„	„	„	„	14	„	2.7
58-59	„	„	„	„	„	Nil	„	4.5
59-60	„	„	„	„	„	„	„	3.2
60-61	„	„	„	„	„	32	0.1	1.3
17 Years' Mean	8	Nil	Nil	Nil	Nil	14	0.1	4.6

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 47

River Tungabhadra

Site Hallur

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1950-51							
1951-52	5,490	14,970	15,188	3,588	4,790	1,095	119.9
52-53	3,321	12,258	22,330	3,030	6,049	1,244	128.5
53-54	2,195	31,084	40,503	4,967	6,977	2,355	235.2
54-55	7,125	29,658	28,397	8,940	3,706	1,027	209.8
4 Years' Mean	4,533	21,992	26,604	5,131	5,380	1,430	173.4

SERIAL No. 48

River Tungabhadra

Site Harihar

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1950-51*						4,016	
1951-52	9,933	24,239	22,791	7,554	8,621	2,512	200.8
52-53	3,750	15,509	28,039	4,486	9,284	1,774	167.4
53-54	3,886	54,691	63,762	9,050	13,138	5,958	401.5
54-55	10,266	33,489	33,018	9,645	6,672	3,152	255.8
55-56*	10,505	20,177	23,273	24,606	18,868		
4 Years' Mean	6,959	31,982	36,902	7,684	9,429	3,349	256.4

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 47

River **Tungabhadra**

Site **Hallur**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1950-51*		857	526	268	242	404		
1951-52	532	304	348	242	251	293	5.2	125.1
52-53	913	563	319	135	115	116	5.7	134.2
53-54	690	304	840	846	835	1,082	12.0	247.2
54-55	664	315	953	599	951	783	11.1	220.9
4 Years' Mean	700	372	615	456	538	568	8.5	181.9

SERIAL No. 48

River **Tungabhadra**

Site **Harihar**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1950-51*	1,390	966	648	296	292	418	10.6	
1951-52	1,365	577	410	274	181	348	8.3	209.1
52-53	1,336	740	348	157	363	141	8.1	175.5
53-54	2,019	1,409	612	393	475	627	14.7	416.2
54-55	1,992	1,351	548	363	616	8,946	36.8	292.6
55-56								
4 Years' Mean	1,678	1,014	480	297	409	2,516	17.0	273.4

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 49

<i>River Tungabhadra</i>		<i>Site Havanur</i>						
<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>	
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>		
1950-51*							3,694	
1951-52	10,046	27,117	25,802	5,750	8,791	1,833		210.9
52-53	4,360	18,599	31,226	4,953	13,616	1,937		199.0
53-54	4,226	51,529	64,915	9,208	13,956	6,866		402.0
54-55	12,954	43,656	42,893	12,967	6,152	2,378		321.7
55-56*	9,386	19,232	22,462	21,392	15,599			
4 Years' mean	7,896	35,225	41,209	8,220	10,629	3,254		283.4

SERIAL No. 50

<i>River Tungabhadra</i>		<i>Site Hesrur</i>						
<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>	
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>		
1950-51*							6,896	
1951-52	16,569	34,835	33,952	13,160	(11,484)	8,047		312.9
52-53	5,737	21,240	30,326	9,648	15,226	5,222		232.3
53-54	5,874	60,094	81,154	15,883	24,044	9,099		522.8
54-55*	13,961	54,014	57,825	22,332	12,540			
3 Years' mean	9,393	38,723	48,477	12,897	16,918	7,456		356.0

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 49

River Tungabhadra

Site Havanur

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1950-51*	2,203	1,121	682	334	384	1,112	15.4	
1951-52	1,252	841	680	424	603	2,063	15.6	226.5
52-53	1,481	827	370	184	323	237	9.0	208.0
53-54	2,883	1,942	1,261	535	428	914	20.9	422.9
54-55	1,675	1,201	976	519	803	8,941	37.5	359.2
55-56								
4 Years' mean	1,823	1,203	822	416	539	3,039	20.8	304.2

SERIAL No. 50

River Tungabhadra

Site Hesrur

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1950-51*	3,548	1,720	Nil	Nil	Nil	Nil	14.1	
1951-52	2,960	3,573	2,204	795	336	1,175	29.1	342.0
52-53	4,152	1,746	429	220	387	282	19.2	251.5
53-54	3,431	2,393	1,969	1,064	767	2,291	31.3	554.1
54-55								
3 Years' mean	3,514	2,571	1,534	693	497	1,249	26.5	382.5

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 51

River **Tungabhadra**

Site **Tungabhadra Dam**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1931-32	6,014	30,320	55,745	28,932	10,034	11,564	378.0
32-33	8,045	110,314	103,828	66,890	51,882	45,319	1,024.4
33-34	45,756	89,264	103,943	87,609	79,574	16,216	1,118.3
34-35	10,671	73,446	95,780	21,173	18,040	7,912	604.6
35-36	3,403	31,336	29,306	24,790	12,255	4,232	279.3
1936-37	10,436	46,280	38,351	17,312	13,032	7,177	352.2
37-38	3,603	55,022	33,909	11,705	16,951	3,905	333.3
38-39	15,571	48,302	22,096	16,307	14,508	3,182	318.4
39-40	3,671	41,131	38,837	21,192	17,744	10,069	352.2
40-41	7,763	53,102	64,610	15,833	17,182	7,279	441.3
1941-42							
42-43							
43-44							
44-45							
45-46							
1946-47							
47-48							
48-49							
49-50							
50-51	7,750	63,524	47,347	36,532	23,361	6,468	491.1
1951-52	15,641	38,407	42,593	10,383	15,404	4,340	336.9
52-53	6,109	28,478	50,493	12,066	24,465	6,504	341.0
53-54	(10,070)	68,353	88,434	16,567	30,783	11,153	600.3
54-55	17,757	57,034	53,788	21,374	10,685	4,194	437.8
55-56	9,536	23,443	23,572	31,210	24,311	11,426	326.2
1956-57	14,376	71,219	49,775	13,978	24,910	24,376	527.5
57-58	10,339	59,219	37,696	14,661	16,917	14,136	406.3
58-59	8,588	99,146	55,982	30,807	13,764	4,892	567.3
59-60	6,466	137,241	49,064	38,812	21,335	6,635	690.7
60-61	4,143	37,683	49,451	22,474	15,176	11,362	372.4
21 Years' Mean	10,748	60,108	54,029	26,696	22,491	10,588	490.5

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 51

River Tungabhadra

Site Tungabhadra Dam

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1931-32	2,920	172	2	Nil	198	288	9.6	387.6
32-33	7,669	3,993	2,186	1,408	519	3,876	52.0	1,076.4
33-34	7,381	4,406	2,128	1,065	1,919	4,237	55.9	1,174.2
34-35	3,020	1,927	1,292	728	1,323	860	24.1	628.7
35-36	1,522	926	518	186	277	249	9.8	289.1
1936-37	2,320	2,677	1,305	700	842	2,716	28.0	380.2
37-38	2,176	2,449	480	896	1,306	1,544	23.5	356.8
38-39	2,566	2,083	589	733	945	1,542	22.4	340.8
39-40	2,824	1,356	875	332	679	322	17.0	369.2
40-41	3,790	1,661	866	421	742	3,323	28.7	470.0
1941-42								
42-43								
43-44								
44-45								
45-56								
1946-47								
47-48								
48-49								
49-50*			416	326	244	622		
50-51	2,744	1,353	784	431	471	1,512	19.2	510.3
1951-52	2,392	1,088	619	448	755	2,701	21.3	358.2
52-53	4,810	1,683	848	560	(858)	(4,457)	35.1	376.1
53-54	2,527	1,764	366	-205	647	2,916	21.4	621.7
54-55	2,915	1,621	847	-120	1,015	10,477	44.5	482.3
55-56	3,504	3,408	4,021	2,994	189	3,647	46.9	373.1
1956-57	5,066	2,700	1,144	1,199	594	4,733	41.0	568.5
57-58	3,779	1,500	1,172	1,038	1,934	6,088	41.0	447.3
58-59	2,876	1,535	758	933	611	684	19.5	586.8
59-60	5,810	3,064	1,293	663	1,131	4,907	44.3	735.5
60-61	6,422	1,574	951	720	1,228	6,903	47.3	419.7
21 Years' Mean	3,763	2,045	1,097	720	866	3,237	31.1	521.6

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 52

River **Tungabhadra**

Site **Rajollbanda**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (July to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1956-57 . . .							
57-58 . . .							
58-59 . . .							
59-60 . . .							
60-61 . . .		20,297	48,801	44,972	20,668	13,440	391.9

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 52

River Tungabhadra

Site Rajolibanda

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>				
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>(July to May) T.M.C.</i>			
1956-57			
57-58			
58-59			
59-60			
60-61	.	.	.	8.706	5,610	9.041	7,310	6,576	3,161	105.3	497.2

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 53

River Tungabhadra

Site Sunkesala

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1904-05	23,392	73,680	38,941	19,467	20,822	4,181	479.3
05-06	5,265	32,841	30,619	15,487	10,888	3,018	260.7
1906-07	5,033	39,200	42,285	36,929	18,103	3,772	385.3
07-08	5,411	57,789	103,953	26,197	16,932	4,510	572.2
08-09	1,701	60,518	65,980	25,771	6,799	3,315	436.8
09-10	11,584	72,777	43,446	25,154	12,683	4,362	451.8
10-11	2,175	36,194	51,839	36,060	32,129	15,300	460.6
1911-12	11,327	56,243	34,963	15,202	14,143	3,070	358.9
12-13	3,480	61,492	68,839	31,960	24,133	7,999	526.2
13-14	8,838	42,973	42,103	13,074	25,457	3,843	362.9
14-15	1,609	77,453	67,867	36,618	13,460	6,128	545.6
15-16	6,341	27,894	37,040	30,290	17,934	13,620	352.1
1916-17	25,826	29,474	55,478	30,980	29,059	53,778	591.9
17-18	12,526	24,358	33,093	63,579	45,802	22,527	532.2
18-19	9,741	12,462	21,639	19,632	6,523	6,168	201.0
19-20	13,236	24,021	37,683	30,035	15,553	14,509	356.7
20-21	6,008	37,901	19,179	15,510	8,534	2,248	237.4
1921-22	6,017	17,983	44,582	15,773	30,362	11,186	334.4
22-23	2,742	36,452	30,838	14,197	9,035	8,790	271.1
23-24	2,924	81,620	74,585	20,535	7,712	2,861	507.2
24-25	4,999	80,603	39,901	27,123	11,291	3,752	446.0
25-26	8,060	56,466	33,415	21,231	18,784	3,969	377.2
1926-27	2,513	25,831	51,039	19,485	10,176	2,246	296.0
27-28	5,892	44,659	28,815	24,581	7,800	6,697	314.1
28-29	5,556	21,947	32,759	17,510	16,003	4,982	262.1
29-30	9,641	38,782	23,279	24,236	19,061	4,887	317.9
30-31	1,477	27,713	23,953	19,124	24,692	6,662	275.2
1931-32	6,164	25,493	63,059	29,222	9,317	10,234	380.4
32-33	5,271	43,612	48,415	27,567	29,619	28,061	483.7
33-34	27,584	51,020	73,679	70,271	62,525	17,176	799.7
34-35	2,218	45,422	53,770	13,602	10,882	8,410	357.6
35-36	6,068	40,323	47,733	30,202	18,598	5,843	394.7
32 Years' Mean	7,832	43,914	45,774	26,456	18,900	9,378	404.0

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 53

River Tungabhadra

Site Sunkesala

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1904-05	1,433	844	474	163	48	1,028	10.5	489.8
05-06	1,467	796	444	147	43	18	7.6	268.3
1906-07	2,755	2,215	419	165	666	1,198	19.6	404.9
07-08	2,375	1,236	532	240	107	792	14.0	586.2
08-09	1,032	677	285	123	53	2,130	11.4	448.2
09-10	2,291	895	357	162	114	844	12.4	464.2
10-11	4,078	2,029	928	426	132	791	22.0	482.6
1911-12	1,952	989	479	271	285	1,288	13.9	372.8
12-13	3,256	1,406	714	326	125	892	17.8	544.0
13-14	1,786	1,038	486	248	142	520	11.3	374.2
14-15	3,776	1,806	805	679	183	1,194	22.3	567.9
15-16	4,136	1,595	616	276	70	571	19.3	371.4
1916-17	5,918	2,654	3,499	830	421	94	35.0	626.9
17-18	6,154	3,379	1,334	502	145	4,232	41.8	574.0
18-19	6,064	1,012	413	144	48	2,050	25.9	226.9
19-20	4,689	1,963	705	260	105	299	21.5	378.2
20-21	1,428	755	412	191	995	284	10.7	248.1
1921-22	2,002	1,916	597	220	127	2,575	19.7	354.1
22-23	2,338	1,217	721	1,201	183	261	15.7	286.8
23-24	1,770	1,137	515	162	283	293	10.9	518.1
24-25	2,637	1,234	625	214	290	5,994	29.4	475.4
25-26	2,496	1,432	814	273	194	778	15.8	393.0
1926-27	1,436	902	479	225	104	109	8.6	304.6
27-28	1,869	1,121	1,286	504	464	848	16.0	330.1
28-29	2,065	1,289	809	387	461	3,965	23.8	285.9
29-30	2,272	1,229	618	270	318	428	13.5	331.4
30-31	2,008	1,306	752	511	305	1,548	17.0	292.2
1931-32	3,410	1,572	754	423	167	825	18.9	399.3
32-33	5,166	2,416	1,174	671	1,079	5,665	42.9	526.6
33-34	6,823	3,741	1,556	914	671	586	37.8	837.5
34-35	1,965	1,271	934	303	706	610	15.2	372.8
35-36	2,065	1,341	851	315	435	2,756	20.5	415.2
32 Years' Mean	2,966	1,513	793	367	296	1,421	19.5	423.5

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 53

River **Tungabhadra**

Site **Sunkesaia**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.)</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>T.M.C.</i>
1936-37 . . .	5,663	48,139	38,891	22,416	17,783	10,153	379.8
37-38 . . .	1,640	54,117	37,277	18,191	22,746	3,027	364.9
38-39 . . .	15,298	50,082	34,093	31,988	20,404	2,410	408.9
39-40 . . .	1,235	40,314	39,535	25,703	22,436	10,666	371.4
40-41 . . .	6,863	49,810	68,424	18,077	21,631	6,211	455.4
1941-42 . . .	14,539	49,835	32,657	20,426	16,034	2,114	360.0
42-43 . . .	8,214	58,257	40,850	17,411	10,102	2,748	366.0
43-44 . . .	9,180	62,142	22,970	26,167	35,455	6,032	430.1
44-45 . . .	6,269	91,861	27,928	14,197	18,177	13,822	458.3
45-46 . . .	4,143	44,921	22,460	14,493	6,928	2,145	253.0
1946-47 . . .	11,617	53,698	84,480	26,568	18,389	12,891	551.8
47-48 . . .	3,032	39,695	49,047	43,554	14,828	2,859	405.6
48-49 . . .	6,596	42,142	59,613	20,075	14,481	9,968	406.3
49-50 . . .	6,795	25,088	37,543	37,867	24,167	4,216	359.2
50-51 . . .	6,574	53,330	44,956	37,214	29,054	7,455	473.8
1951-52 . . .	12,145	39,043	31,919	14,310	19,421	3,704	320.3
52-53 . . .	2,517	24,416	42,439	8,982	25,362	2,792	284.0
17 Years' Mean	7,195	48,641	42,064	23,391	19,847	5,071	391.1

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 53

River Tungabhadra

Site Sunkesala

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
1936-37 . . .	2,272	1,446	799	412	802	505	16.5	396.3
37-38 . . .	1,920	1,294	562	235	346	1,239	14.8	379.7
38-39 . . .	1,739	1,083	371	91	80	72	9.1	418.0
39-40 . . .	2,261	1,549	803	384	233	12,799	48.1	419.5
40-41 . . .	2,775	1,529	1,087	417	222	866	18.1	473.5
1941-42 . . .	2,502	1,266	663	380	250	357	14.5	374.3
42-43 . . .	2,140	1,616	680	293	220	17,814	60.7	426.7
43-44 . . .	2,261	1,711	1,044	1,067	269	1,072	19.8	449.9
44-45 . . .	2,171	1,515	678	366	445	554	15.2	473.5
45-46 . . .	1,716	1,024	479	394	209	2,766	17.5	270.5
1946-47 . . .	2,898	2,185	1,152	639	190	522	20.0	571.8
47-48 . . .	5,314	1,774	977	282	414	3,726	33.3	438.9
48-49 . . .	3,135	1,769	1,180	412	285	2,207	23.7	430.0
49-50 . . .	1,994	1,278	638	378	143	106	11.9	371.1
50-51 . . .	2,256	1,545	777	414	243	1,063	16.5	490.3
1951-52 . . .	2,466	1,333	607	223	122	7,471	32.6	352.9
52-53 . . .	2,647	1,368	605	351	166	97	13.9	297.9
17 Years' Mean	2,497	1,487	771	396	273	3,132	22.7	413.8

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 53

River Tungabhadra

Site Sunkesala

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.)</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>T.M.C.</i>
1953-54	1,045	57,156	71,757	23,186	41,888	21,542	576.1
54-55	2,561	43,758	58,019	13,430	11,645	5,392	359.2
55-56	4,337	19,117	38,426	48,268	36,041	9,777	412.2
1956-57	6,277	64,008	51,257	16,872	47,278	27,409	566.3
57-58	9,228	40,089	27,158	13,855	15,686	40,765	387.6
58-59	3,437	59,801	27,124	31,570	11,177	3,932	363.6
59-60	6,654	82,175	45,901	53,553	14,101	4,378	548.1
60-61	3,044	47,562	82,209	69,246	31,374	28,604	693.1
8 Years' Mean	4,573	51,708	50,231	33,748	26,149	17,725	488.3

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 53

River Tungabhadra

Site Sunkesala

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1953-54 . . .	4,455	2,915	3,535	3,579	1,303	503	42.6	618.7
54-55 . . .	3,491	3,008	5,229	5,170	3,975	5,506	68.9	428.1
55-56 . . .	2,502	3,519	3,461	3,587	4,937	3,400	56.3	468.5
1956-57 . . .	4,715	3,505	4,329	5,374	4,707	3,022	67.2	633.5
57-58 . . .	5,050	2,192	4,518	4,427	3,601	4,745	64.2	451.8
58-59 . . .	2,156	2,152	5,707	2,790	3,728	3,265	51.4	415.0
59-60 . . .	4,066	4,081	5,048	5,235	3,613	5,182	71.7	619.8
60-61 . . .	9,229	3,719	6,139	5,436	5,356	4,316	89.7	782.8
8 Years' Mean	4,452	3,136	4,746	4,450	3,902	3,742	64.0	552.3

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 54

River Tunga (Tungabhadra)

Site Tunga anicut (Sacrebyle)

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1946-47 . . .							
47-48 . . .	1,431	22,882	21,520	13,882	4,584	3,537	180.1
48-49 . . .	6,667	19,436	31,021	13,666	7,321	4,663	219.6
49-50 . . .	10,885	15,164	21,847	13,323	7,669	3,864	192.3
50-51 . . .	6,310	34,968	22,290	28,914	18,271	2,040	298.9
1951-52 . . .							
52-53 . . .	6,946	14,318	23,793	4,673	5,349	(2,490)	152.9
53-54 . . .	3,338	33,642	34,984	6,854	5,163	3,073	232.1
54-55 . . .	8,460	27,500	26,323	9,635	4,415	1,965	208.0
55-56 . . .							
1956-57 . . .							
57-58 . . .							
58-59 . . .	(6,666)	51,464	25,720	13,440	5,318	2,009	278.2
59-60 . . .	9,742	65,572	28,847	20,679	7,155	3,750	360.7
60-61 . . .	7,692	27,143	25,814	10,368	7,063	4,381	218.9
10 Years' Mean	6,814	31,209	26,216	13,543	7,231	3,177	234.2

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 54

River Tunga (Tungabhadra)

Site Tunga anicut (Sacrebyle)

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1946-47*		896	481	602	468	412		
47-48	1,943	1,130	752	695	(366)	(668)	14.7	194.8
48-49	2,692	(1,000)	(587)	(340)	(366)	(668)	14.9	234.5
49-50	1,261	1,321	(587)	(340)	(366)	(668)	11.9	204.2
50-51	(1,802)	(1,000)	(587)	(340)	(366)	(668)	12.5	311.4
1951-52								
52-53	(1,802)	(1,000)	(587)	(340)	(366)	Nil	10.7	163.6
53-54	1,726	1,469	1,044	570	434	295	14.4	246.5
54-55	1,160	383	183	109	477	2,645	13.1	221.1
55-56								
1956-57								
57-58								
58-59	1,050	317	145	123	72	42	4.6	282.8
59-60	2,321	1,226	883	366	481	363	14.9	375.6
60-61	2,337	1,211	518	180	(366)	(668)	14.0	232.9
10 Years' Mean	1,809	1,006	587	340	366	668	12.6	246.8

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 55

River **Bhadra (Tungabhadra)**

Site **Lakkavalli**

Year	Mean discharge (Cusecs)						Volume (June to Nov.) T.M.C.
	June	July	Aug.	Sep.	Oct.	Nov.	
1929-30*			7,256	4,193	3,115	1,291	
30-31	2,939	8,145	7,826	4,737	4,743	1,512	79.3
1931-32	896	8,267	21,579	6,166	2,377	1,875	100.5
32-33	1,853	15,490	10,434	7,240	5,098	3,435	115.7
33-34	8,086	12,786	10,900	8,776	7,704	1,990	132.9
34-35	2,954	8,400	11,679	2,598	2,427	1,088	77.5
35-36	1,195	12,721	7,213	7,086	3,571	1,344	88.1
1936-37	5,573	11,077	9,423	3,978	4,032	1,690	94.8
37-38	2,344	14,931	8,102	2,628	4,747	1,298	90.7
38-39	5,721	10,957	5,819	3,570	3,056	936	79.6
39-40	1,343	11,773	8,096	3,238	3,816	2,115	80.8
40-41	4,891	14,792	16,139	4,028	3,705	2,493	122.3
1941-42	6,384	12,825	10,560	4,142	4,399	1,300	105.1
42-43	3,297	16,928	10,859	5,196	3,377	1,209	108.5
43-44	4,327	18,833	5,960	6,967	6,892	2,527	120.8
44-45	1,928	14,410	6,391	1,849	2,645	1,643	76.9
45-46	1,980	12,310	5,830	3,236	1,576	746	68.2
1946-47	5,157	13,904	22,573	6,699	3,313	2,688	144.4
47-48	756	12,631	13,437	7,200	3,145	1,305	102.3
48-49	3,573	12,308	17,561	5,289	3,242	3,196	120.0
49-50	3,094	8,483	11,103	5,435	3,087	1,503	86.7
50-51	2,229	17,037	9,616	11,186	4,614	2,326	124.6
1951-52	3,940	10,323	9,004	3,224	3,695	1,140	83.2
52-53	2,758	6,822	10,776	1,803	4,135	792	72.2
53-54	2,063	18,543	18,151	3,795	5,456	2,034	133.5
54-55	4,949	13,712	16,381	5,186	3,249	1,179	118.6
55-56	4,975	5,061	6,484	6,050	5,099	1,935	78.3
1956-57	6,931	15,076	11,846	3,825	5,366	3,822	124.3
57-58	1,849	14,709	8,941	3,533	2,742	3,489	93.6
58-59	951	22,701	10,610	6,781	3,426	1,536	122.5
59-60	(200)	28,627	11,765	9,354	4,178	1,934	149.1
60-61	(200)	6,235	12,524	2,874	3,703	4,920	80.8
31 Years' Mean	3,204	13,255	11,212	5,086	3,955	1,969	102.7

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 55

River **Bhadra (Tungabhadra)**

Site **Lakkavalli**

Year	Mean discharge (Cusecs)						Volume	
	Dec.	Jan.	Feb.	Mar.	Apr.	May	(Dec. to May) T.M.C.	Annual T.M.C.
1929-30* . . .	726	372	216	131	114	199	4.5	
30-31 . . .	550	395	225	126	159	93	4.0	83.3
1931-32 . . .	959	498	294	166	168	786	7.5	117.0
32-33 . . .	1,322	654	359	259	196	634	9.1	124.8
33-34 . . .	1,148	671	343	210	180	125	7.1	140.0
34-35 . . .	553	334	201	121	110	103	3.9	81.4
35-36 . . .	757	421	269	208	172	176	5.3	93.4
1936-37 . . .	858	435	252	163	204	156	5.4	100.2
37-38 . . .	909	412	247	149	189	138	5.2	95.9
38-39 . . .	547	306	177	116	112	88	3.7	83.3
39-40 . . .	881	482	275	153	140	401	6.3	87.1
40-41 . . .	1,190	634	368	235	173	187	7.3	129.6
1941-42 . . .	1,066	486	294	164	139	176	6.2	111.3
42-43 . . .	854	545	270	163	114	1,244	8.5	117.0
43-44 . . .	1,206	686	395	273	156	193	7.6	128.4
44-45 . . .	745	425	245	132	184	94	4.9	81.8
45-46 . . .	448	250	145	107	147	129	3.3	71.5
1946-47 . . .	1,398	709	403	260	223	134	8.3	152.7
47-48 . . .	883	479	265	155	208	194	5.8	108.1
48-49 . . .	1,135	579	331	208	183	431	7.7	127.7
49-50 . . .	743	368	243	144	100	120	4.6	91.3
50-51 . . .	841	438	243	145	159	243	5.6	130.2
1951-52 . . .	673	342	232	132	137	156	4.5	87.7
52-53 . . .	626	247	163	103	135	75	3.7	75.9
53-54 . . .	1,012	564	297	211	286	386	7.2	140.7
54-55 . . .	827	476	269	175	190	2,010	10.6	129.2
55-56 . . .	971	523	323	179	170	1,027	8.5	86.8
1956-57 . . .	1,979	830	74	21	(20)	252	8.9	132.9
57-58 . . .	1,090	19	465	309	167	238	5.9	99.5
58-59 . . .	937	445	169	(100)	(100)	(100)	5.0	127.5
59-60 . . .	4,060	885	142	(100)	(100)	(100)	14.6	163.7
60-61 . . .	3,422	(240)	(100)	(100)	(100)	(100)	10.9	91.7
31 Years' Mean	1,113	477	261	164	156	332	6.7	109.4

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 56

River Bhadra (Tungabhadra)

Site Bhadra anicut

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1946-47 . . .							
47-48 . . .	673	13,548	13,903	9,046	4,432	2,932	118.0
48-49 . . .	2,421	12,777	16,052	6,171	3,576	3,610	118.5
49-50 . . .	2,671	14,714	11,210	4,828			
50-51 . . .							
1951-52 . . .		9,938	9,810		4,412		
52-53 . . .							
53-54 . . .		16,634	16,625	3,804	5,635	1,974	
54-55 . . .	4,445	10,667	10,430	6,941			
55-56 . . .							
1956-57 . . .							
57-58 . . .							
58-59 . . .							
59-60 . . .							
60-61 . . .							

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 56

River **Bhadra (Tungabhadra)**

Site **Bhadra anicut**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1946-47	:	:	:	:	:	:	Nil	
47-48	11.5	129.5
48-49	19.3	137.8
49-50	.	:	:	:	:	:		
50-51		
1951-52		
52-53	.	:		
53-54		
54-55		
55-56		
1956-57		
57-58		
58-59		
59-60		
60-61		

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 57

River **Varada (Tungabhadra)**

Site **Banavasi**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (Jan. to June) T.M.C.</i>
	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>June</i>	
1906	
07	
08	
09	
10	
1911	
12	
13	
14	
15	
1916	
17	
18	
19	
20	
1921	
1st Jan. to 30th Apr. 1922							
May '22 to Apr. '23							
May '23 to Apr. '24							
May '24 to Apr. '25							
May '25 to Apr. '26							
18 Years' Mean							

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 57

River **Varada (Tungabhadra)**

Site **Banavasi**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>(July to Dec.) T.M.C.</i>	<i>Annual T.M.C.</i>
1906 . . .								
07 . . .								
08 . . .								47.7
09 . . .								39.3
10 . . .								33.7
1911 . . .								31.7
12 . . .								62.7
13 . . .								41.4
14 . . .								56.0
15 . . .								22.8
1916 . . .								44.8
17 . . .								39.2
18 . . .								21.7
19 . . .								38.1
20 . . .								33.1
1921 . . .								35.6
1st Jan. to 30th Apr. 1922*								0.1
May '22 to Apr. '23								29.0
May '23 to Apr. '24								67.8
May '24 to Apr. '25								44.6
May '25 to Apr. '26								58.8
18 Years' Mean								41.6

*Not considered for calculating the average.

Note : The figures given for the years 1908 to 1919 are for seven months, June to December.

VOLUME OF SEASONAL AND ANNUAL FLOW

SERIAL No. 58

River **Hagari (Tungabhadra)**

Site **Vanivilas Sagar**

<i>Year</i>	<i>Volume of flow</i>		
	<i>Jan. to June</i>	<i>July to Dec.</i>	<i>Annual</i>
	<i>T.M.C.</i>	<i>T.M.C.</i>	<i>T.M.C.</i>
1913*		2.3	
14	0.2	2.3	2.5
15	2.6	2.3	4.9
1916	1.9	9.7	11.6
17	0.9	10.3	11.2
18	2.1	6.7	8.8
19	2.1	14.3	16.4
20	0.8	2.4	3.2
1921	0.6	2.6	3.2
22	1.5	5.6	7.1
23	1.7	3.6	5.3
24	0.3	2.9	3.2
25	0.8	1.5	2.3
1926	1.1	2.4	3.5
27	1.8	1.3	3.1
28	0.7	4.8	5.5
29	0.6	2.4	3.0
30	0.7	3.2	3.9
1931	0.6	1.9	2.5
32	1.3	24.0	25.3
33	1.4	11.4	12.8
34	1.0	1.1	2.1
35	1.0	3.1	4.1
1936	0.1	2.9	3.0
37	0.4	3.0	3.4
38	Nil	1.3	1.3
39	0.8	3.0	3.8
40	0.3	6.5	6.8

*Not considered for calculating the average.

VOLUME OF SEASONAL AND ANNUAL FLOW

SERIAL No. 58

River **Hagari (Tungabhadra)**

Site **Vanivilas Sagar**

<i>Year</i>	<i>Volume of Flow</i>		
	<i>Jan. to June</i>	<i>July to Dec.</i>	<i>Annual</i>
	<i>T.M.C.</i>	<i>T.M.C.</i>	<i>T.M.C.</i>
1941 . . .	0.4	3.7	4.1
42 . . .	0.9	1.1	2.0
43 . . .	0.8	10.5	11.3
44 . . .	1.4	4.5	5.9
45 . . .	0.5	0.2	0.7
1946 . . .	1.0	6.2	7.2
47 . . .	Nil	3.3	3.3
48 . . .	1.4	4.4	5.8
49 . . .	0.3	3.0	3.3
50 . . .	0.5	5.1	5.6
1951 . . .	1.2	4.6	5.8
52 . . .	0.2	3.8	4.0
53 . . .	1.6	18.7	20.3
54 . . .	0.6	1.9	2.5
55 . . .	1.1	8.9	10.0
1956 . . .	1.0	11.0	12.0
57 . . .	2.5	7.5	10.0
58 . . .	0.8	5.5	6.3
59 . . .	2.4	8.5	10.9
60 . . .	0.5	7.4	7.9
47 Years' Mean	1.0	5.4	6.4

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 59

River Hagari (Tungabhadra)

Site Naranapur

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (July to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1956-57							
57-58							
58-59							
59-60							
60-61	—	240	262	208	272	239	3.1

SERIAL No. 60

River Hagari (Tungabhadra)

Site Bhairavanithippa

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1956-57							
57-58	1,043	548	577	690	1,336	298	11.9
58-59	358	290	703	2,385	857	(470)	13.3
59-60	639	395	309	1,840	523	608	11.4
60-61	183	328	164	588	517	520	6.0
4 Years' Mean	556	390	438	1,376	808	474	10.6

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 59

River **Hagari (Tungabhadra)**

Site **Naranapur**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>(July to May) T.M.C.</i>
1956-57								
57-58								
58-59								
59-60			185	461	205	502		
60-61	131	167	183	161	184	980	4.7	7.8

SERIAL No. 60

River **Hagari (Tungabhadra)**

Site **Bhairavanithippa**

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1956-57*		462	517	473	523	703		
57-58	580	1,093	137	107	172	10	5.5	17.4
58-59	277	99	76	105	121	510	3.2	16.5
59-60	240	174	152	584	119	445	4.6	16.0
60-61	160	163	131	130	133	685	3.5	9.5
4 Years' Mean	314	382	124	232	136	412	4.2	14.8

*Not considered for calculating the average.

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 61

River Dindi

Site Dindi Reservoir

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1956-57 . . .							
57-58 . . .							
58-59 . . .	Nil	122	629	585	274	29	43
59-60 . . .	13	102	962	38,130	1,459	345	106.5
60-61 . . .	Nil	107	22	2,187	684	25	8.0
3 Years' Mean	4	110	538	13,634	806	133	39.6

SERIAL No. 62

River Palleru

Site Palleru Reservoir

<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume (June to Nov.) T.M.C.</i>
	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sep.</i>	<i>Oct.</i>	<i>Nov.</i>	
1956-57 . . .							
57-58 . . .							
58-59 . . .	8	1,229	1,336	781	1,366	162	13.0
59-60 . . .	32	506	2,871	1,421	1,946	102	18.4
60-61 . . .	46	225	102	215	168	8	2.0
3 Years' Mean	29	653	1,436	806	1,160	91	11.1

MEAN DISCHARGE BY MONTHS AND VOLUME OF ANNUAL FLOW

SERIAL No. 61

River Dindi

Site Dindi Reservoir

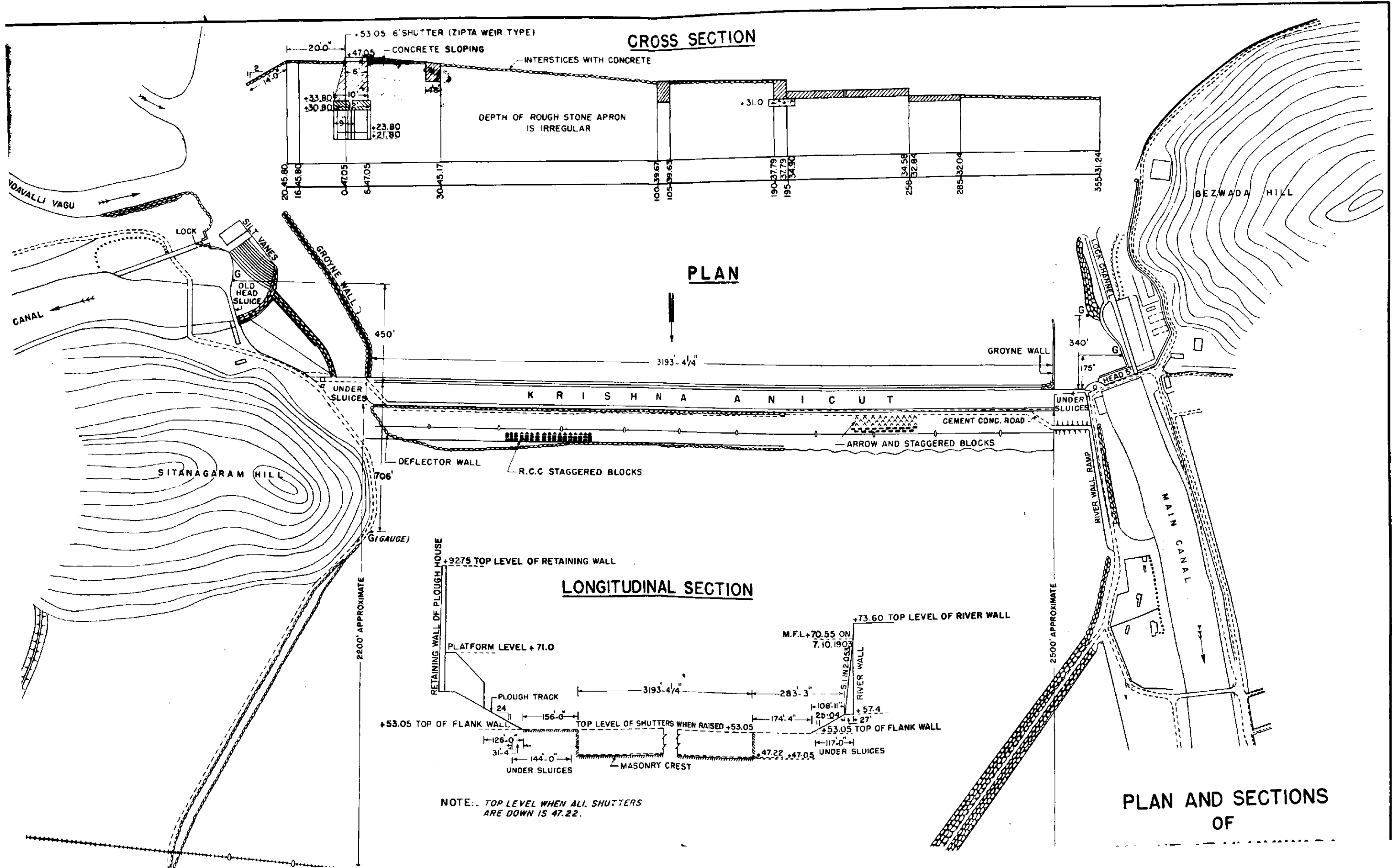
<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1956-57								
57-58								
58-59	11	Nil	Nil	Nil	Nil	Nil	Nil	4.3
59-60	1	"	"	"	"	"	"	106.5
60-61	12	5	5	7	2	4	"	8.0
3 Years' Mean	8	2	2	2	1	1	Nil	39.6

SERIAL No. 62

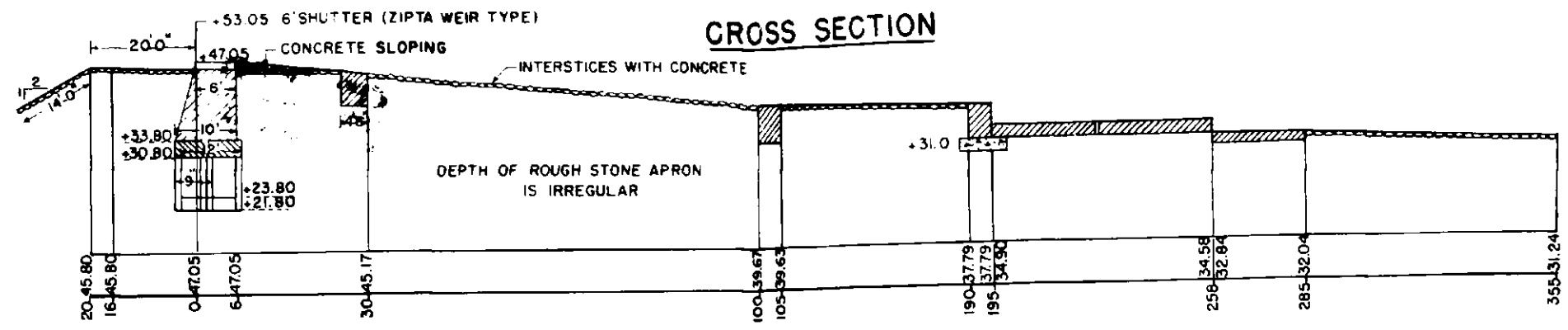
River Palleru

Site Palleru Reservoir

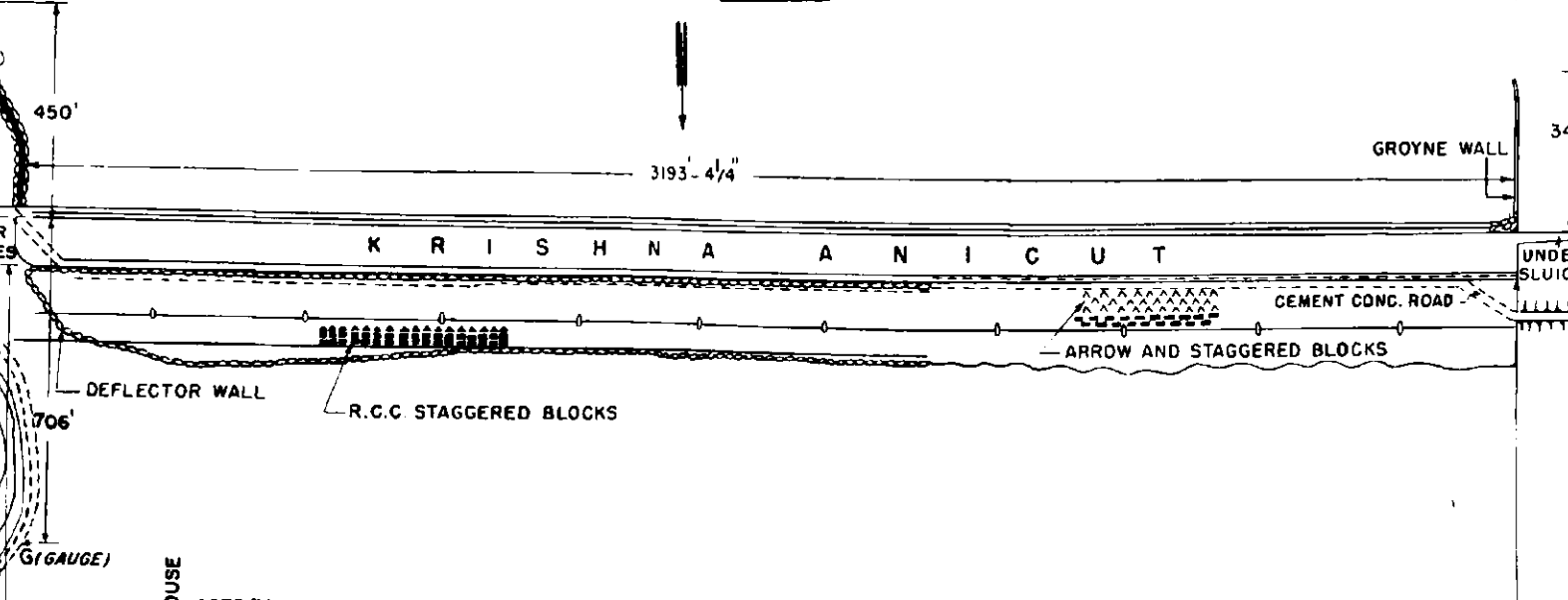
<i>Year</i>	<i>Mean discharge (Cusecs)</i>						<i>Volume</i>	
	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>(Dec. to May) T.M.C.</i>	<i>Annual T.M.C.</i>
1956-57								
57-58								
58-59	16	19	25	15	Nil	Nil	0.2	13.2
59-60	Nil	Nil	Nil	Nil	"	"	Nil	18.4
60-61	12	12	"	"	"	"	"	2.0
3 Years' Mean	9	10	8	5	Nil	Nil	0.1	11.2



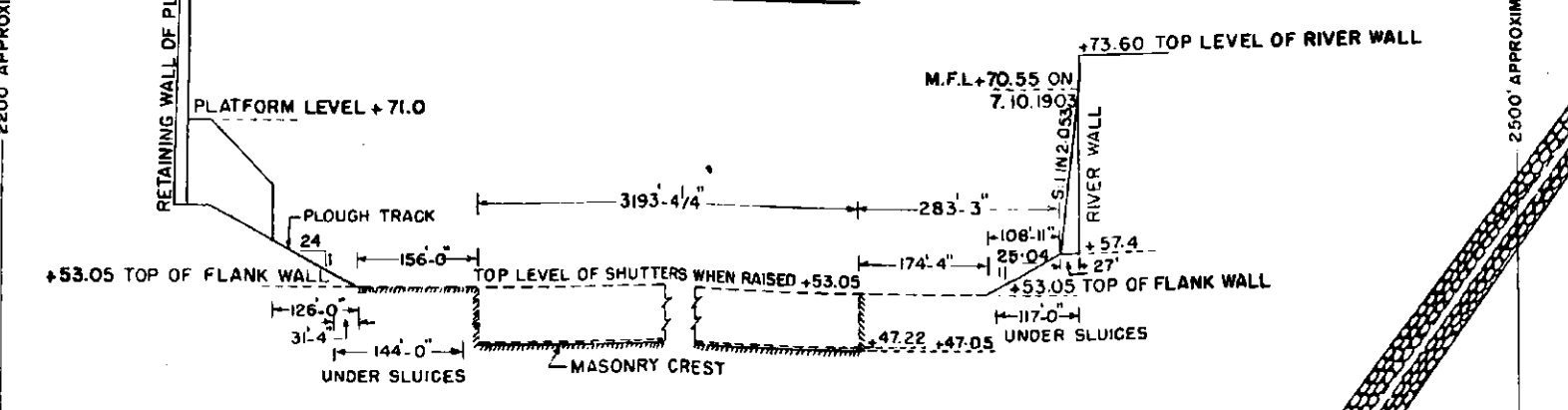
CROSS SECTION



PLAN



LONGITUDINAL SECTION



NOTE: TOP LEVEL WHEN ALL SHUTTERS ARE DOWN IS 47.22.

PLAN AND SECTIONS OF